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ABSTRACT

Through a longitudinal study of compensatory education programs conducted by the school district of River Rouge, Michigan, the question as to whether the application of an interorganizational change model produces significant improvements was tested. The compensatory education program, both before the interorganizational model and after it, was analyzed in terms of changes in instructional programs, teacher performance, inservice training activities, and student performance. Data were obtained from official documents, written records, and written accounts. The case study was employed as the method to illustrate change. Data were analyzed by historical comparison methods, and a panel of experts served as independent evaluators. A number of findings were derived from the study: (1) instructional programming changed mainly from remediation at a fixed pace before the interorganizational model to remediation and individualization afterwards; (2) a statistical significant change in teacher behavior occurred after the model; and (3) although inservice was fragmended and content oriented before the model, inservice was systematically conducted after induction of the model. Major conclusions drawn from the study include the following: (1) application of the interorganizational model resulted in increased use of individualized instructional material; (2) use of the model resulted in significant improvement in teacher behavior: (3) inservice training activities were more effective after the model; and (4) student academic performance improved significantly. (Author/AM)

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ABSTRACT

A CASE STUDY OF THE EFFECTS OF AN INTERORGANIZATIONAL CHANGE MODEL ON A COMPENSATORY EDUCATION PROGRAM

By

Fredric Alan Rivkin

A.B. Eastern Michigan University, 1956

M.Ed. Wayne State University, 1959

William H. Melching

William H. Melching, Ph.D., Advisor
Senior Staff Scientist
Human Resources Research Organization
Presidio of Monterey, California

A Dissertation Submitted in Partial Fulfillment of
The Requirements for the Degree of
Doctor of Philosophy

WALDEN UNIVERSITY

July, 1976

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ABSTRACT

A CASE STUDY ON THE EFFECTS OF AN INTERORGANIZATIONAL CHANGE MODEL ON A COMPENSATORY EDUCATION PROGRAM

Statement of the Problem

The fundamental aim of this investigation was to produce a longitudinal study of compensatory education programs conducted by the school district of River Rouge, Michigan to determine the effects produced by the application of an interorganizational change model. The compensatory education program, both before the interorganizational model and after it, was analyzed in terms of changes in instructional programs, teacher performance, inservice training activities, and student performance.

Methodology of the Study

Data were obtained from official documents, written records, and written accounts located in the files of the River Rouge School District and the Michigan Department of Education. The case study was employed as the method to illustrate change. Data were analyzed by historical comparison methods. A panel of expert judges served as independent evaluators.

Findings of the Study

A number of findings were derived from the study. Several important ones were: (1) instructional programming changed from mainly remediation at a fixed pace before the interorganizational model to remediation and

individualization afterwards. Before the model, few individualized materials were purchased, but afterwards, large quantities were ordered and put into use. A panel of judges accurately selected descriptions of preprogram and postprogram years; (2) a statistically significant change in teacher behavior occurred after the model. Teachers learned to improve teacher-student interactions by providing response opportunities and approving behaviors while eliminating disapproving behaviors. Improved teacher behavior was sustained throughout postmodel years; (3) inservice training activities were fragmented and content oriented before the model. Inservice emphasized imparting knowledge to teachers. After the model, inservice was systematically conducted. Training features included: external change agents, large blocks of training time, follow-up, teacher observation, feedback, teacher performance objectives, and coordinator objectives. Judges determined more effective and less effective training years; and (4) a statistically significant improvement in academic gain scores by program students compared to nonprogram students.

Conclusions of the Study

Major conclusions evolving from the investigation were: (1) application of the interorganizational model resulted in increased usage of individualized instructional material; (2) use of the model resulted in significant improvement in teacher behavior; (3) inservice training activities were more effective after the model; and (4) student academic performance improved significantly.

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CHAPTER I

INTRODUCTION

Background of the Study

Objective of the Dissertation

The fundamental aim of this investigation was to produce a longitudinal study of compensatory education programs conducted by the school district of River Rouge, Michigan to determine the effects produced by the application of an interorganizational change model. The compensatory education program, both before the interorganizational model and after it, was analyzed in terms of changes in instructional programs, teacher performance, inservice training activities, and student performance.

Historical Background

To establish an historical context, a brief overview of the compensatory education movement is provided. This review describes national and State compensatory education goals and early public school compensatory education programs.

For the past decade and a half, the education of America's economically and educationally disadvantaged students has occupied the attention of public schools and universities. To overcome the effects of poverty on student academic performance, special compensatory education programs were begun, whose ultimate goal was to enable disadvantaged students to compete successfully with those more advantaged.[1]

The Demonstration Guidance Project was the landmark effort at the rehabilitation of disadvantaged youth. Early identification and stimulation of able students from low socioeconomic-status homes were the objectives of this successful project based in Manhattan, New York.[2] Several years later and expanded in coverage, the Demonstration Guidance Project was incorporated into the regular structure of the New York City Public Schools as the Higher Horizons Program which sought to raise the educational, vocational, and cultural sights of disadvantaged youth.[3] This program became the model used across the country in the later development of compensatory education programs.

The spread of compensatory education programs was accelerated by financial support from the Ford Foundation's Great Cities School Improvement Program.[4] Federal government financial support, mainly for elementary and secondary education, hastened further extension and development of compensatory education programs.

> In recognition of the special educational needs of children on low-income families and the impact that concentrations of low-income families have on the ability of local educational agencies to support adequate educational programs, the Congress hereby declares it to be the policy of the United States to provide financial assistance . . . to local educational agencies serving areas with concentrations of children from low-income families to

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[1] Benjamin Bloom, Allison Davis, and Robert Hess, Compensatory Education for Cultural Deprivation (New York: Holt, Rinehart and Winston, Inc., 1965), pp. 1-2.

[2] Edmund W. Gordon and Doxey A. Wilkerson, Compensatory Education for the Disadvantaged (New York: College Entrance Examination Board, 1966), pp. 7-8.

[3] Ibid., p. 7-8.

[4] [Paul A. Nachtigal], A Foundation Goes to School (New York: The Ford Foundation, 1972), pp. 8-12.

> expand and improve their educational programs . . . which contribute particularly to meeting the special educational needs of educationally deprived children.[1]

The enactment of Title I of the Elementary and Secondary Education Act of 1965 produced a sudden influx of federal dollars into a multitude of local school districts. Within a matter of months, compensatory education program development became a high priority item for many school districts. The task at hand involved developing and implementing programs that would meet the most pressing educational needs of children from low-income families. In seeking to overcome the educational deficiencies of this student population, school districts provided remedial instruction in the cognitive skills of reading, mathematics, and language; cultural enrichment; medical and dental treatment; teacher training; diagnostic service; and other ancillary services.[2]

The Michigan Legislature, in the State School Aid Act of 1969, followed the lead of the United States Congress and authorized and appropriated State funds for culturally and economically deprived students. Under the provisions of Section 3 of the Act, individual elementary schools having a high degree of cultural and economic deprivation received State funds for reducing the adult-pupil classroom ratio, conducting inservice teacher training programs, and providing para-professional assistance to teachers.[3]

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[1] U.S., Congress, House, The Elementary and Secondary Act of 1965, Pub. L. 89-10, 89th Cong., 1st sess., 1965, H.R. 2362, p. 1.

[2] Edward L. McDill, Mary S. McDill, and J. Timothy Sprehe, Strategies for Success in Compensatory Education: An Appraisal of Evaluation Research (Baltimore: The Johns Hopkins Press, 1969), p. 27.

[3] Michigan, Act No. 312 of the Public Acts of 1957, as amended by Act No. 21 of the Public Acts of 1968 (1968), pp. 21-23.

Several years later, Section 3 was revised to direct dollars specifically to those elementary school students who were defined as academic underachievers by their scores on a State-wide educational assessment instrument.[1] This was a shift from the Title I, E.S.E.A. method of concentrating dollars on school attendance areas to one in which money was designated for identified low achieving students. Furthermore, Section 3 included an accountability feature which specified that the subsequent year's funding level would be contingent on each student's composite reading and mathematics achievement gain score.

The River Rouge, Michigan School District attempted to achieve the maximum yield from its compensatory education programs, particularly with respect to improved student achievement, taking into account the new legislation. The early years of compensatory education program development in the River Rouge School District were guided by a "things and people" approach. Instructional efforts and the expenditure of dollars were concentrated on the acquisition of additional professional and para-professional personnel and new instructional techniques, programs, materials, and equipment. In order to train both newly acquired and veteran personnel for their specialized functions and help them become proficient in the use of new techniques, materials, and equipment, inservice training was provided by nationally recognized consultants and professors from nearby colleges and universities.

The objectives of the early compensatory education programs were stated in global and ambiguous terms, "To improve and strengthen the student's ability to write . . . . To equip the learner with the basic skills . . . . To deepen professional insights and broaden understanding of the educationally disadvantaged child."[1]

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[1] Michigan, Act No. 312 of the Public Acts of 1957, as amended by Act No. 134 of the Public Acts of 1971 (1971), pp. 18-20.

The approach to compensatory education program development and how its objectives were stated led to certain expectations on the part of administrative personnel: (1) Student academic achievement would dramatically improve, and (2) Teachers would be more understanding of disadvantaged students and would exhibit more commitment to helping the target population.

For the most part, however, this was not the case. Annual evaluations of compensatory education activities usually revealed month by month achievement gains for target students. However, there was no indication of a pervasive reduction of educational deficits. Targeted students remained in a given program for two, three, and even four years. While showing normal student academic achievement gains, the annual evaluations failed to provide evidence of improved teacher performance as a consequence of the inservice training programs provided. Furthermore, each year new instructional delivery systems were acquired as those of preceeding years were stored away or discarded. These observations led to a reassessment of how the compensatory education program was implemented

By 1969, the compensatory education director had begun to look for other approaches to improving the compensatory education program. This entailed identification and examination of the capabilities and work history of both other university-based personnel and of various training organizations outside public education. Personnel contacted at local colleges and universities were unable to provide work histories that would offer adequate assurance of meeting the compensatory education program objectives, and university-based staff did not give evidence they were qualified as professional trainers.

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[1] River Rouge School District, "Application for Federal Assistance for the Education of Children from Low Income Families, Title II, Public Law 81-874 as amended by P.L. 89-10, Title I," River Rouge, Mich., 1965, pp. 3-4.

After considerable review of alternative approaches, the school district departed from the traditional education-based source of help and presented the problem of improving the compensatory education program to the Human Resources Research Organization (HumRRO): An applied research and development organization specializing in problem solving and improving human performance.

> HumRRO is a dynamic research-and-development organization, and effecting change is our business. The broad area in which we work can be labeled 'improving human performance'. To achieve this objective, we focus on both the individual and the organization, seeking that ideal congruence in which the goals of each can be realized. We work to effect change by contributing to the solutions of problems . . . .[1]

This decision was based on the long term success of HumRRO in developing and conducting training programs for the United States Army and on its multi-disciplinary staff composition.

HumRRO proposed a program to improve the compensatory education program and the academic performance of disadvantaged students by means of an inservice teacher training program. The objective of the inservice training was to improve teacher classroom instructional behavior and sustain the change over time. Maintaining the increased proficiency of the teachers was to be achieved by an in-house inservice training capability to be developed using local school district personnel.

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[1] 1971 Annual Report (Alexandria, Va.: Human Resources Research Organization, [1971]), p. 1.

HumRRO's approach was conceived novel and appeared to hold promise for success, and a contract between the school district and HumRRO was prepared and executed. HumRRO, acting as the external change agent, provided inservice training to teachers of disadvantaged students. The compensatory education program would be improved by improving teacher's classroom instructional behavior, and so the ultimate criterion of improved student academic achievement would be achieved.

Formulation of the Problem

A convenient method for describing how a process occurs involves the use of models. These conceptualizations usually specify the step-by-step procedures by which a particular function takes place. The model which describes HumRRO's methods of operation has been termed the Inter-organizational Research and Development-Decision-Use Cycle model.[1] This model, hereinafter referred to as the interorganizational model, governed HumRRO's work style with respect to the development and conduct of inservice training programs.[2]

The purpose of the present study was to test the research hypothesis: The application of the interorganizational model has produced significant improvement in the River Rouge School District's compensatory education program.

Operational Hypotheses

The operational hypotheses tested by this study were derived from the stated outcomes contained in the proposals submitted by the external change agent. These hypotheses are:

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[1] William A. McClelland, The Process of Effecting Change (Alexandria, Va.: Human Resources Research Office, The George Washington University, [1968]), p. 21.

[2] For a description of the interorganizational model see p. 28.

1. Application of the interorganizational model has resulted in increased usage of individualized instructional programs in reading and mathematics
2. Application of the interorganizational model has resulted in significant improvement in teacher classroom instructional behavior
3. Application of the interorganizational model has resulted in improved inservice teacher training activities
4. Application of the interorganizational model has resulted in significant improvement in student academic achievement in reading and mathematics

Assumptions

The purpose of the study was not to evaluate the efficacy of the interorganizational model, but rather to describe the results produced by the implementation of the model. Therefore, it was assumed that the procedural steps of the interorganizational model were correctly applied by the external change agent. It was also assumed that a valid, reliable, and comprehensive description of the events and results produced by the application of the interorganizational model can be generated.

Significance of the Problem

Several reasons have contributed to making this study significant.

1. A search of the literature yielded few studies of school systems that contracted with external change agents to im-

prove compensatory education programming. A distinction is made here with respect to the relationship between change agent and client in this study and the relationship when there is a guaranteed performance contract. In the former, the relationship is one of nonfailure cooperation versus high risk in the latter.[1]

2. The interorganizational model employed by the external change agent is unique in education. Previously the change agent's clients were almost exclusively all military.[2] The model had been designed for use in the non-educational milieu.

3. The need for the present study was further supported by the absence of longitudinal studies of compensatory education. Compensatory education program evaluations have been reported by Badal, Felix and Jacobs, Fox, Mosbaek, Chapline, and Gordon, to name a few.[3] In all cases, only one or two years of

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[1] Polly Carpenter and George R. Hall, Case Studies in Educational Performance Contracting, vol, 1: Conclusions and Implications (Santa Monica, Calif.: The Rand Corporation, R-900/1 HEW, 1971), pp. 5-6.

[2] Human Resources Research Organization, "What is HumRRO?" Alexandria, Va., March, 1971.

[3] Alden W. Badal, ESEA Program of Compensatory Education, (Arlington, Va.: ERIC Document Reproduction Service, ED 023 531, 1968); Joseph L. Felix and James N. Jacobs, Evaluation of the Impact of the Elementary and Secondary Education Act, Title I in the Cincinnati Public Schools After One Year and a Half (Arlington, Va.: ERIC Document Reproduction Service, ED 018 527, 1967); David J. Fox, More Effective Schools Program: Evaluation of ESEA Title I Projects in New York City 1967-68 (Arlington, Va.: ERIC Document Reproduction Service, ED 030 202, 1969); E.J. Mosbaek, Analysis of Compensatory Education in Five School Districts, Volume II: Case Studies (Arlington, Va.: ERIC Document Reproduction Service, ED 023 531, 1968); Elaine B. Chapline, Title I, ESEA Programs, School Year 1973-74. Evaluation--Final Reports July, 1974 (Arlington, Va.: ERIC Document Reproduction Service, ED 095 230, 1974), and Aaron Z. Gordon, Sr., "A Comparison of Three Programs

of operation were evaluated.

Definition of Terms

For the purposes of the present study certain terms will be used; they are defined below:

External Change Agent. Specialists in individual and organizational change outside the target organization who attempt to influence adoption decisions in a direction they think desirable.

Innovation. A deliberate, novel, or specific change which is thought to be efficacious in accomplishing the goals of a system.

Diffusion. The acceptance over time of some specific item (idea or practice) by individuals or groups linked by specific channels of communication to a social structure and to a given system of values or culture.

Compensatory Education Program. 1. The efforts by a local school system to develop and implement educational programs to prevent or overcome earlier deficiencies in the development (cognitive, affective, psychomotor) of individuals. 2. Programs funded by either Title I of the Elementary and Secondary Education Act of 1965 or Chapter 3 (formerly Section 3) of the Michigan State School Aid Act.

Scope and Limits of the Study

The scope of the study will be restricted to the compensatory education program operated in the four elementary schools in the River

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for Compensatory Elementary Education in the Detroit Public Schools," (Ph.D dissertation, University of Michigan, 1974).

Rouge, Michigan School District from January 1966 to June 1975. The compensatory program components or activities to be studied will include only those for low achieving students in grades one through seven. Specific attention will be directed toward examining those program components that deal with reading, mathematics, language development, and inservice training.

Summary

This first chapter included a general overview of the study's objective and scope. Specifically, it included a discussion of the following topics: (1) background, (2) the problem, (3) hypotheses, (4) assumptions, (5) significance, (6) definition of terms, and (7) limitations.

The remainder of the dissertation is divided into four additional chapters. Chapter Two contains a review of the literature which pertains to this study. In Chapter Three, the design of the study is presented. Findings of the investigation are reported in Chapter Four. Conclusions and recommendations are presented in Chapter Five.

CHAPTER II

REVIEW OF RELATED LITERATURE

Introduction

A school system that tries to improve program performance and educational outcomes may follow one of several paths to its goal. These paths correspond to several prevailing schools of thought about the process of change. While each of these approaches presumably will achieve the desired objective, they begin from different starting points in the change process.

To illuminate the various conceptual frameworks, the review of the literature has been divided in four parts: (1) historical background of change, (2) current models for effecting change, (3) the interorganizational model, and (4) need for the present study. Furthermore, this literature review places the present study in context among other researches and discourses on change.

Historical Background of Change

> Cultural anthropologists have been interested in the change process perhaps longer than any other discipline. A few educators were examining the rates of diffusion of new ideas 35 years ago. Rural sociologists, who have had a continuing interest in innovation research since the 1920's, pioneered in the quantitative study of the diffusion process. Since World War II, a variety of people working in industry, economists, historians, engineers, and psychologists, have actively pursued studies in the area.[1]

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[1] McClelland, Effecting Change, pp. 2-3.

In recent years, there have been a growing number of case studies describing the change process. There are Hood's study of the development and use of an Army leadership preparation training course; O'Connell's and Burns and Stalker's case studies of planned changes in industrial settings; Niehoff's examination of innovation in agrarian societies; Lippitt's and Gross, Giaquinta, and Bernstein's work in school systems; Richland's research on the traveling seminar and conference for school administrators; and Morison's study of innovation in naval gunnery, to cite a few.[1]

Some perspective about the utilization of research and development may be gained by a review of studies of adoption rates. The slow accretion of education innovation has been documented empirically by Mort. His 1941 study indicated that it took about 50 years for complete diffusion of kindergarten to take place.[2] Travers reports the same kind of lag at the turn of the century in the adoption of the ideas proposed by Rice, a physician turned educator. Rice demonstrated that the amount of the time devoted to a particular skill had no relationship to acquisition of that skill.[1]

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[1] Paul D. Hood, Implementation and Utilization of the Leader Preparation Program (Alexandria, Va.: Human Resources Research Office, George Washington University, Technical Report 67-2, [1967]); John J. O'Connell, Managing Organizational Innovation (Homewood, Ill.: Richard D. Irwin, Inc., 1968); Terrence Burns and G.M. Stalker, The Management of Innovation (London: Tawistock Publications, 1966); Arthur H. Niehoff, Planned Change in Agrarian Countries (Alexandria, Va.: Human Resources Research Organization, Technical Report 69-21, [1969]); Ronald Lippitt, "Role and Processes in Curriculum Development and Change," in Strategy for Curriculum Change, ed. Robert R. Leeper (Washington: Association for Supervision and Curriculum Development, 1965); Neal C. Gross, Joseph B. Giacquinta, and Marilyn Bernstein, Implementing Organizational Innovations: A Sociological Analysis of Planned Educational Change (New York: Basic Books, Inc., 1971); Martin Richland, Traveling Seminar and Conference for the Implementation of Educational Innovations (Santa Monica, Calif.: System Development Corporation, Technical Memorandum 2691, [1965], and Elting E. Morison, "A Case Study of Innovation," in The Planning of Change, ed. Warren G. Bennis, Kenneth D. Benne, and Robert Chin (New York: Holt, Rinehart and Winston, 1969).

[2] Paul R. Mort and Francis G. Cornell, American Schools in Transition (New York: Bureau of Publications, Teachers College, Columbia University, 1941), p. 53.

In agriculture, individual farmers took about 15 years to adopt a new hybrid corn.[2] Findings from Project HINDSIGHT and from an Air Force Office of Scientific Research study suggest that a 5 to 10 year period is typical of the lag in the use of a scientific or technological finding or event.[3] A study of adoption (i.e., prescription) of a new drug by physicians indicated that two years were needed for more or less complete diffusion.[4] Clearly adoption rates have varied over time, among contexts, and from discipline to discipline.

Current Models for Effecting Change

Miles notes that there is no systematically drawn theory of change which encompasses the diversity of perspectives and concepts currently found in education.[5] McClelland noted that "It is premature to do more than wish for a general model, let alone a general theory of change and changing."[1]

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[1] Robert M.W. Travers, "A Study of the Relationship of Psychological Research to Educational Practice," in Training Research and Education, ed. Robert Glaser (Pittsburgh: University of Pittsburgh Press, 1962), p. 560.

[2] Elihu Katz, "The Social Itinerary of Technical Change: Two Studies of the Diffusion of an Innovation," Human Organization 20 (Summer 1962): 70-78.

[3] Chalmers W. Sherwin and Raymond S. Isenson, "Project Hindsight," Science 156 (June 23, 1967): 1571-1577.

[4] Katz, "Diffusion of an Innovation," pp. 79-82.

[5] Matthew B. Miles, "Innovation in Education: Some Generalizations," in Innovation in Education, ed. Matthew B. Miles (New York: Bureau of Publications, Teachers College, Columbia University, 1964), pp. 58-60.

Taking into account the limitation cited above, there are several discernable perspectives on the process of change. Havelock, instead of regarding them as theories, identified four strategic orientations: (1) social interaction model; (2) problem solver model; (3) research, development, and diffusion model; and (4) linkage model.[2] Each of these models will be described below.

Social Interaction Model

This perspective focuses on the individual and his perception of an innovation in five stages: (1) awareness of a need for the innovation, (2) interest in seeking more information concerning the use of the innovation, (3) evaluating the innovation with respect to the present status of the system, (4) small scale trial of the innovation, and (5) adoption of the innovation which results in continued use.[3]

The product, the individual, and the channels of communication between individuals are the primary focuses. A social interaction perspective assumes that a research product has been created, developed, and partially diffused. It is at the diffusion point that the social interaction model concentrates by specifying the stages to be followed for accepting or rejecting the adoption.

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[1] McClelland, Effecting Change, p. 15.

[2] Ronald G. Havelock, The Change Agent's Guide to Innovation in Education (Englewood Cliffs, N.J.: Educational Technology Publications, Inc., 1973), pp. 159-165.

[3] Everett M. Rogers, Diffusion of Innovations (New York: Free Press of Glencoe, 1962), p. 81.

While individual values, vested interests, and ego needs are taken into account, other possible barriers to be overcome are not recognized, such as the importance of a sound technological basis for insuring the workability of a particular innovation.

> Organizational constraints and intertia are subordinated to interpersonal blockages. The persuasiveness with which an individual communicates a concept to his associates takes predominance over the validity of the message and the medium through which it is transmitted.[1]

As indicated earlier, empirical research in an educational setting is scarce. However, two studies have used a social interaction model. LaMar examined the effect of inservice education on how teachers progressed through the five stages described above. All project teachers completed opinion inventories which were followed up by personal interviews of randomly selected teachers. He found that the stages were not distinctly perceived by teachers, and that there were cross-stage reasons given for rejection of the innovation. LaMar warned that future research using the five stages as categories for rejection would probably not be fruitful.[2]

Carlson, focusing on the adoption of innovations by school systems, treated the influence of social position and status on the direction of communication flow. The social interaction among superintendents adopting innovations was found to depend on status and social network involvement. He described a two-step flow of communication by which a superintendent, viewed by others as an opinion leader, hears of an innovation and passes it on to other superintendents in the same social group. He also found that higher status superintendents tended to adopt innovations earlier than lower status superintendents.[1]

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[1] Human Resources Research Organization, California Division, "Project Interlink," Carmel, Calif., 1975, p. 42. (Typewritten.)

[2] Ronald V. LaMar, "In-Service Education Needs Related to the Diffusion of an Innovation" (Ed.D. dissertation, University of California, Berkeley, 1966), pp. 231-238.

Problem Solver Model

In the problem solver model, the user of an innovation is seen as a client to be helped in a collaborative setting. This approach to change evolved from the interest of group dynamicists, namely, Watson and Jung, Fox, and Lippitt, in their studies of how group problem solving can be facilitated.[2] Assuming that user needs are paramount, more effective problem solving procedures can be implemented by understanding the psychological orientation and fears of persons in groups.

The seven stages of the problem solver model, presented below, eminated from Lewin's delineation of three stages in the process of change: (1) unfreezing the client system in order to realize a problem exists and change is needed, (2) moving the client system in order to implement the change, and (3) freezing the client system in order to firmly establish the change.[3]

Lippitt, Watson, and Westley expanded each of Lewin's stages and produced seven stages: (1) developing a need to change, (2) establishing a change relationship, (3) diagnosing the problem, (4) examining alternative goals and establishing plans of action, (5) transforming plans into change efforts, (6) generalizing and stablizing the change, and (7) achieving a terminal relationship.[1]

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[1] Richard O. Carlson, Adoption of Educational Innovation (Eugene, Oreg.: The Center for Advanced Study of Educational Administration, University of Oregon, 1965), pp. 6-27

[2] Goodwin Watson, ed., Concepts for Social Change (Washington, D.C.: National Training Laboratories, National Education Association, 1967), and Charles C. Jung, Robert Fox, and Ronald O. Lippitt, "An Orientation and Strategy for Working on Problems of Change in School Systems," in Change in School Systems, ed. Goodwin Watson (Washington, D.C.: National Training Laboratories, National Education Association, 1969).

[3] Kurt Lewin, "Group Decisions and Social Change," in Readings in Social Psychology, ed. G.E. Swanson (New York: Henry Holt and Co., 1952), pp. 315-317.

Three empirical case studies have been undertaken using the theoretical context of the problem solver model. Maguire related the seven stages of the Lippitt, Watson, and Westley model to a planned change project conducted by Research for Better Schools, a regional educational laboratory. Gathering documentation related to the project, Maguire prepared the history of the development of the project. Interviews were conducted with key personnel in the development of the project. This culminated in a comparison of the development of the project with the Lippitt, Watson, and Westley model. Maguire concluded that: (1) the model's seven stages provided a useful scheme for analyzing the change process, (2) the probability of the project's success would have been increased if all of the stages had been followed, (3) the political interplays associated with the project had a disproportionate influence on its direction, and (4) the project did not achieve the objective of improving the school's change capability.[2]

At the public school level, Smith compared two elementary schools involved in structural change. The case histories of both schools were prepared based on interviews with staff members and project trainers, memos written by teachers and project trainers, and questionnaires. She found that the change agent intervention strategy of the problem solver approach lacked sufficient emphasis on: (1) clarifying the innovation, (2) increasing motivation, and (3) facilitating the development of internal capability for establishing new roles, procedures, and goals associated with the innovation.[1] Smith's study is of particular significance in that it compared, over time, two schools, one accepting the innovation and the other rejecting the innovation.

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[1] Ronald Lippitt, Jeanne Watson, and Bruce Westley, The Dynamics of Planned Change (New York: Harcourt, Brace and Co., Inc., 1958), pp. 137-141.

[2] Louis M. Maguire, "A Comparison of a Planned Change Effort of a Regional Education Laboratory to the Lippitt-Watson-Westley Model" (Ed. D. dissertation, University of Oregon, 1970), pp. 257-259.

The third study focused upon the planned change process within one urban elementary school. Although the Lippitt, Watson, and Westley model was not explicitly used, the problems encountered and the recommendations made by the investigators were related to the problem solver approach. Gross, Giacquinta, and Bernstein found that lack of identification of problems and failure to establish feedback mechanisms were major causes for unsuccessful implementation of the change.[2]

> True problem solving behavior can be unlocked only after the individual participant's hidden needs and agendas are surfaced. This model puts excessive pressure on the participant in the problem solving cycle to carry through on his own the search and retrieval of alternative strategies for testing. It does not provide an effective way of utilizing existing information storage and retrieval systems or outside resource groups so that the most up-to-date information can be made available to the decision maker.[3]

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[1] Mary A. Smith, "A Comparison of Two Elementary Schools Involved in a Major Organizational Change: Or You Win a Few, You Lose A Few" (Ph.D. dissertation, University of Oregon, 1972), pp. 197-201.

[2] Neal C. Gross, Joseph B. Giacquinta, and Marilyn Bernstein, Implementing Organizational Innovations: A Sociological Analysis of Planned Educational Change (New York: Basic Books, Inc., 1971), p. 194.

[3] Human Resources Research Organization, "Interlink," p. 42.

Research, Development, and Diffusion Model

The third change model--research, development, and diffusion--provides a wider perspective, viewing change from an interorganizational standpoint. The model "considers the receiver of new ideas and practices as essentially passive."[1] Instead of focusing upon client needs, the model emphasizes the predetermined solution to problems. Proponents assume that a rational, well-designed procedure or application will, in effect, sell itself to the potential users. The four stages, described by Guba are: (1) research, the purpose of which is the advancement of knowledge; (2) development, which is directed at identifying operating problems and formulating solutions; (3) diffusion, which is directed at the creation of awareness about new developments; and (4) adoption, the installation of a development.[2]

> Guba stressed the importance of maintaining a distinction between research, the discovery of new ideas, and development, the solution to problems. In addressing the developmental stage, Guba stated it is this activity, and not research, which is at the heart of change, for while research may make change possible, it is development that actually produces an innovation that may be adopted.[3]

How research affects practice is shown by a summary of a planned change program and two empirical studies. Research for Better Schools conducted a wide-scale effort to expand the Individually Prescribed Instruction Mathematics Program. The effort was geared to the monitoring of staff improvement, efficacy of training materials, and effectiveness of the Individually Prescribed Instruction Mathematics Program. School participation was initially controlled by the criteria of seriousness and ability. The Research for Better School strategy essentially followed a research, development, and diffusion approach, but it differed in that it stressed a high degree of control during the adoption stage.[1]

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[1] Paul A. Douglas. The Diffusion of an Innovation Through Interorganizational Linkages: A Cooperative Case Study (Arlington, Va.: ERIC Document Reproduction Service, ED 098 236, 1974), p. 38.

[2] Egon G. Guba, "The Process of Educational Improvement," in Educational Change: The Reality and the Promise, ed. Robert R. Goulet (New York: Citation Press, 1968), pp. 136-137.

[3] Douglas, Interorganizational Linkages, p. 39.

The first empirical study compared the dissemination of multimedia techniques by an in-depth approach in eight schools with dissemination by a broad approach in forty schools. The in-depth approach involved evaluation, extensive inservice training, and follow-up consultations, whereas the broad approach involved multi-media demonstrations, workshops, and visitations. The study found that the two approaches had comparable positive effects.[2]

Elaborating on Guba's third and fourth stages, Brickell described the aims of multiple dissemination activities as creating awareness, arousing interest, demonstrating and making materials available, and providing training and continuing support.[3] This paradigm was investigated by Byron. Demonstrations and reeducation sessions were used to disseminate an instructional innovation, which in turn was monitored in order to determine the degree of implementation. He found that the content of the innovation was learned by 75 percent of the teachers and introduced in varying degrees by 95 percent of those teachers. The classroom practices prescribed by the innovation and the actual operationalization of the practices were separated by a noticeable gap; 75 percent of the teachers failed to implement the innovative practices. Furthermore, inservice sessions were effective in teaching the new practices. Lastly, 88 percent of the teachers indicated that six months of actual experience with the innovation were necessary in order to develop convictions of its worth.[1] Byron also noted that the degree of implementation was affected not only by the external support but also by the internal support given by the superintendents and principals. He further concluded that there was a need for externally based follow-up after the product implementation phase.[2]

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[1] James W. Becker, "Incorporating the Products of Educational Development into Practice," Journal of Research and Development in Education III (Winter 1970): 93-98.

[2] Leroy A. Green, Educational Technology Dissemination Project: A Project in Selected Methods of Disseminating Information Regarding Educational Media by State Department of Education (Denver, Colo: Colorado Department of Education, 1966), pp. 52-54.

[3] Henry M. Brickell, "The Role of Local School Systems in Change," in Perspectives on Educational Change, ed. Richard I. Miller (New York: Appleton-Century-Crofts, 1967), pp. 79-89.

Linkage Model

The fourth and last perspective to be presented is the linkage model. Because the model has just recently been developed and explicated, limited empirical study and descriptive consideration have taken place.

Developed by Havelock, the linkage model incorporates several aspects from each of the three preceding theories into a unifying concept. The seven factors considered are: (1) linkage—degree of interpersonal connection and mutual communicative relations among two or more parties; (2) structure--systematic organization and coordination of elements within the research continuum; (3) openness--readiness to give and to receive new information; (4) capacity--factors related to a broad range of human, fiscal, and political resources; (5) reward--positive reinforcement accruing to members of the system involved in the research-utilization continuum; (6) proximity--physical accessibility; and (7) synergy--an active redundancy of forces, purposefully orchestrated and directed at the adoption.[1]

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[1] Joseph P. Byron, "An Analysis of Some of the Consequences of an Effort to Spread a Curriculum Innovation" (Ed.D. dissertation, Columbia University, 1969), pp. 232-247.

[2] Ibid., p. 255.

According to the linkage principle, the internal problem solving process of the user is viewed as the starting point. The searching for and retrieval of new outside knowledge relevant to the problem solving cycle is elaborated more fully. "Technically speaking, the resource person needs to develop a good 'model' of the user system in order to 'link' to him effectively."[2]

At the same time, the client must have an appreciation and understanding of the resource system or external change agent functions. The client must be able to partially carry out such activities as research, development, and evaluation.

In order to more faithfully simulate each other, there must be reciprocal feedback and signals between the resource system and user that are mutually reinforcing.

> Linkage is not seen merely as a two-person process, however. The resource person, in turn, must be linked in a similar manner to more and more remote expert resources.

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[1] Ronald G. Havelock, Planning for Innovation Through Dissemination and Utilization of Knowledge (Ann Arbor, Mich.: Center for Research on Utilization of Scientific Knowledge, Institute for Social Research, University of Michigan, 1971), pp. 21-29.

[2] Havelock, Change Agent's Guide, p. 165.

> As the RD&D school holds, there must be an extensive and rational division of labor to accomplish the complex tasks of innovation building. However, each separate role-holder must have some idea of how other roles are performed and some idea of what the linkage system as a whole is trying to do.[1]

Although there have been more conceptual discussions of the efficacy of the linkage model than empirical and descriptive studies, four studies will be presented.

O'Connell used Havelock's linkage typology to construct alternative strategies for an instructional innovation. Ratings by a panel composed of administrators and teachers involved with the innovation resulted in 90 percent of the strategies being rated as appropriate for the diffusion of the innovation.[2]

An explicit focus on interorganizational relationships from a political standpoint was taken by Pohland, who investigated the structures used to implement the innovation of computer assisted instruction. He found that (1) interorganizational theory was inadequate, (2) conflict was a function of organizational interdependence, (3) goals prescribed by organizations were meaningless compared with actual interorganizational relationships, (4) types of interorganizational arrangements were a function of the agreement in values, (5) mediating structures were necessary to adjudicate disputes, and (6) federally funded projects were subject to political realities.[3]

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[1] Ibid., p. 165.

[2] Richard H. O'Connell, "A Diffusion Model for the COLAMDA Project in Colorado" (Ed.D. dissertation, University of Denver, 1971), pp. 195-203.

[3] Paul A. Pohland, "An Interorganizational Analysis of an Innovative Educational Program" (Ph.D. dissertation, University of Washington, 1970), pp. 317-323.

Corwin studied the interorganizational dynamics of change using change agents linked to universities. Sociological intervention strategies were compared in order to determine their relative effectiveness. Corwin found that change was enhanced when (1) the outside organization had greater power than the host organization, (2) the interdependence between organizations was high, and (3) the boundary roles of the organizations were staffed by cosmopolitan, liberal, and professionally competent members.[1]

Douglas studied the diffusion of an innovation in terms of the organizational relationships and roles of a research and development center, several mediating systems, and local school districts. He found that (1) the innovation is the goal that acts as the reference point for system relationships; (2) linkage between the teacher education institution, a mediating system, and the user system was positively related to the diffusion of the innovation; (3) the frequency of interaction was, in descending order, teacher education institution and user systems, resource system and mediating system, state education agency and user system, and resource system and user system; and (4) internal factors of structure and capability had varying consequences in diffusion.[2]

Summary

Four models describing the change process have been described in this section of the review of the literature. Each is briefly summarized below.

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[1] Ronald G. Corwin, "Strategies for Organizational Innovation: An Empirical Comparison," American Sociological Review XXXVII (August 1972): 451.

[2] Douglas, Diffusion of Innovation, pp. 275-281.

1. The social interaction model focuses on the individual and his perception of an innovation
2. The problem solver model places major emphasis on the needs of the individual
3. The research, development, and diffusion model stresses predetermined solutions to problems
4. The linkage model emphasizes development of lines of communication between the individual and the change agent as the vehicle for effecting change

The model investigated in this study is presented next.

The Interorganizational Model

The interorganizational model has emerged from a basically military context where it has been in use for over twenty years. As stated by McClelland the interorganizational model is one in which emphasis is placed on the continuing relationship between two existing complex systems; the client system and the research and development change agent system, as opposed to one which focuses primarily on a person-to-person relationship.[1]

Chin has elaborated further on the interorganizational paradigm from an intersystem standpoint.

> The intersystem model for the study of the process of bringing about change gives attention to the usually anonymous change agent. His mode of relationship to the client system, his actions, his strategy and his valid knowledge about diagnosing the here-and-now relationship of himself to the client system, are brought forth and conceptualized.[2]

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[1] McClelland, Effecting Change, p. 16.

[2] Robert Chin, "Some Ideas on Changing," in Perspective on Educational Change, ed. Richard I. Miller (New York: Appleton-Century-Crofts, 1967), pp. 338-339.

The interorganizational paradigm contains four major phases: (1) establishing the requirements for research and development, (2) conduct of research and development, (3) the decision process, and (4) the use or rejection of the innovation. The model in schematic form is presented in figure 1.

According to McClelland, the model is based on the assumption that extensive meaningful documentation is needed, the diffusion of which may be helpful to individuals and groups other than the target system. "It assumes there is minimal participation by a third agent, the linker, the R & D agency performing this role."[1]

In a general way, the model allows for role recognition by both the client and the research and development systems. Furthermore, the model specifies over time the nature of the extended relationship and areas of common interaction.

In practice, the client usually poses a problem to the research and development agency. In applied research and development, the problem generally relates to some form of training research, as described by Vallance and Crawford.[2] The problem is refined and clarified by the research and development agency and then submitted to the client for approval. Next, the problem is studied, and the results are presented to the client for further action.

If the client decides the results do not warrant further action by the research and development agency, the research findings are made avail-

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[1] McClelland, Effecting Change, p. 19.

[2] Theodore R. Vallance and Meredith P. Crawford, "Identifying Training Needs and Translating Them into Research Requirements," in Training Research and Education, ed. Robert Glaser (Pittsburgh: University of Pittsburgh Press, 1962), pp. 505-509.

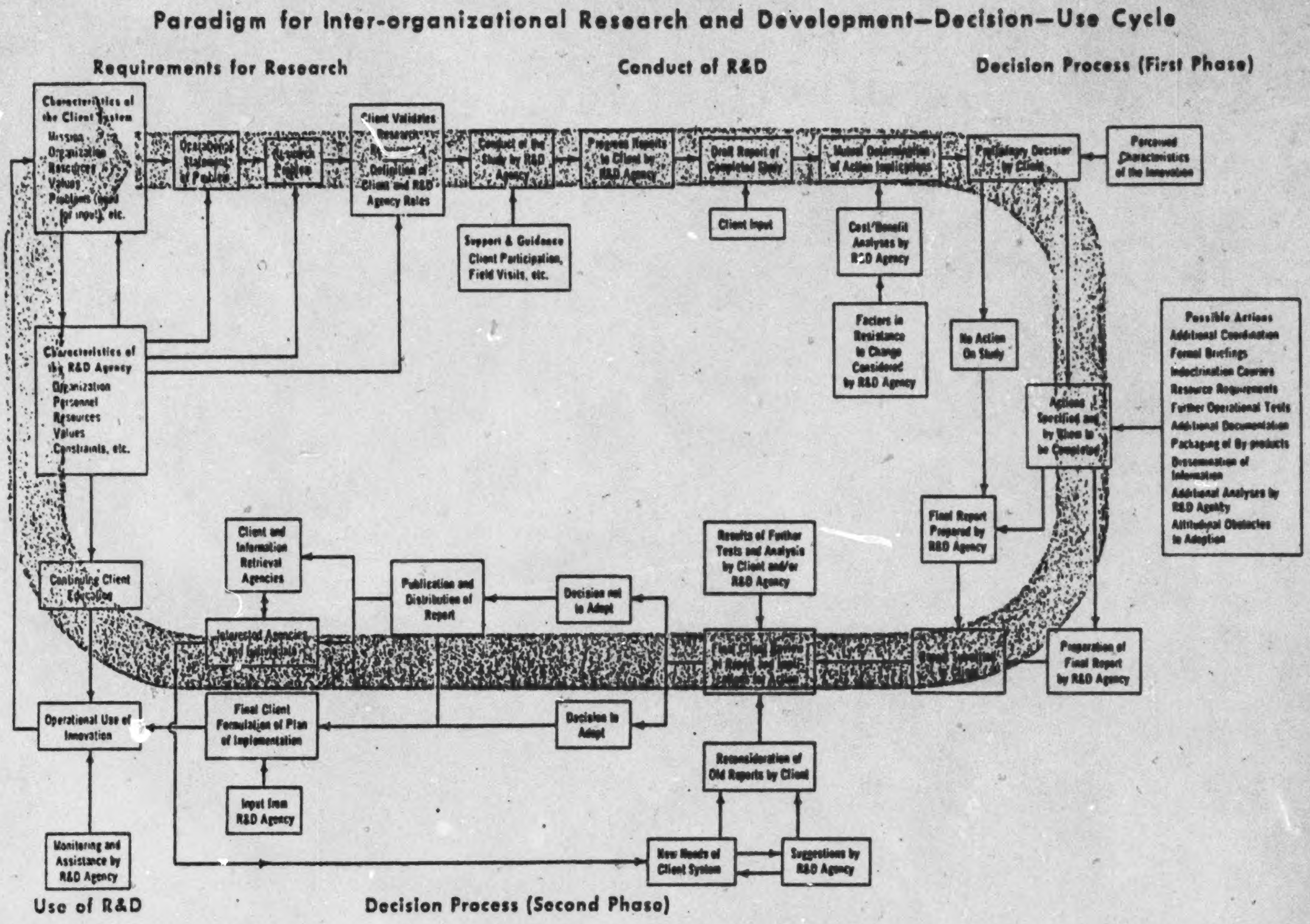
Paradigm for Inter-organizational Research and Development—Decision—Use Cycle
Requirements for Research
Conduct of R&D
Decision Process (First Phase)
Characteristics of the Client System
Mission
Organization
Resources
Values
Problems (input for input), etc.
Operational Statement of Problem
Research Problem
Client Validates Research Requirements
Definition of Client and R&D Agency Roles
Conduct of the Study by R&D Agency
Progress Reports to Client by R&D Agency
Draft Report of Completed Study
Mutual Determination of Action Implications
Preliminary Decision by Client
Perceived Characteristics of the Innovation
Support & Guidance
Client Participation,
Field Visits, etc.
Client Input
Cost/Benefit Analyses by R&D Agency
Factors in Resistance to Change Considered by R&D Agency
No Action On Study
Characteristics of the R&D Agency
Organization
Personnel
Resources
Values
Constraints, etc.
Possible Actions
Additional Coordination
Formal Briefings
Indoctrination Courses
Resource Requirements
Further Operational Tests
Additional Documentation
Packaging of By-products
Dissemination of Information
Additional Analyses by R&D Agency
Attitudinal Obstacles to Adoption
Actions Specified and by Whom to be Completed
Final Report Prepared by R&D Agency
Preparation of Final Report by R&D Agency
Results of Further Tests and Analysis by Client and/or R&D Agency
Client and Information Retrieval Agencies
Publication and Distribution of Report
Decision not to Adopt
Decision to Adopt
Continuing Client Education
Interested Agencies and Individuals
Operational Use of Innovation
Final Client Formulation of Plan of Implementation
Input from R&D Agency
Reconsideration of Old Reports by Client
Monitoring and Assistance by R&D Agency
New Needs of Client System
Suggestions by R&D Agency
Use of R&D
Decision Process (Second Phase)

Fig. 1 Interorganizational Model

able in the public domain. If the development of a training program is suggested and authorized, a seven step procedure is followed.

At the outset, human performance requirements must be determined by input from both the client and research and development agencies. "The initial and most critical step in the development of any training program is to specify and describe what a man must know and be able to do on the job for which he is being trained."[1]

Cogan and Lyons view this position as not unrealistic and as having widespread application. "Anything that can be specifically defined can be measured."[2]

The second step requires that training objectives be derived from job performance requirements. Training objectives describe what tasks must be mastered and the desired standards of performance.[3]

The next step is to base training content on training objectives. The ease with which this step proceeds is dependent upon the precision of the objectives. "Only after training content has been determined should full attention be devoted to selecting instructional techniques and training aids. We must know what to teach before we can realistically determine how to teach it."[4]

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[1] William A. McClelland and J. Daniel Lyons, Guidelines for Manpower Training as Developed by the Human Resources Research Office (Alexandria, Va.: Human Resources Research Office, The George Washington University, Professional Paper 43-68, [1968]), p. 4.

[2] Eugene A. Cogan and J. Daniel Lyons, Frameworks for Measurement and Quality Control (Alexandria, Va.: Human Resources Research Organization, Professional Paper 16-72 [1972]), p. 5.

[3] Harry L. Ammerman and William H. Melching, The Derivation, Analysis, and Classification of Instructional Objectives (Alexandria, Va.: Human Resources Research Office, The George Washington University, Technical Report 66-4, [1966]), pp. 20-29.

[4] McClelland and Lyons, Manpower Training, p. 5.

The fourth step involves selecting appropriate training methods. Since most training content can be presented in a great variety of ways, the trainer seeks the method which research indicates will produce the maximum yield.[1]

Administering training so as to minimize interference with learning and maximize learning is the fifth step.

> The school system must be organized and run to insure production of the required performances. Scheduling of classes and work details, providing for knowledge of progress by the students, arranging for appropriate and realistic practice of skills to be learned, emphasizing student performance as opposed to completing progress charts, and integrating classroom, laboratory, and field instruction, are all relevant to the administration of training.[2]

Throughout the whole of the training sequence, feedback is needed to determine how well the training objectives have been met. Establishment of a quality control program permits continuous assessment not only of program effectiveness but also of trainee performance.[3]

The final step allows for modifying training as required. Modification may be necessary if performance requirements change. Furthermore, data obtained from the quality control function can be used to eliminate any deficiencies in the training program.

Generally, two kinds of products have resulted from implementation of the interorganizational model: An evaluation report of a particular training program or technique and a packaged training program ready for diffusion. As examples of the former, Whitmore evaluated the job description procedures utilized by the United States Army for officer training purposes. He found that job description procedures were originally developed for machine-ascendant systems and as such were deficient for training leadership skills. The job model approach was suggested to overcome this deficiency.[1] Showel evaluated several methods of training typists in the United States Army. Based on student performance, Showel was able to recommend a modification of the existing training program that would improve the typing performance of clerks.[2] Caylor *et al*. provided the United States Army with information about methodologies for determining literacy demands of Army jobs.[3] Olmstead *et al*. identified and isolated critical organizational processes that influence the effective performance of command and control function in complex organizations.[4]

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[1] John E. Taylor, Eugene R. Michaels, and Mark F. Brennan, The Concepts of Performance-Oriented Instruction Used in Developing the Experimental Volunteer Army Training Program (Alexandria, Va.: Human Resources Research Organization, Technical Report 72-7, [1972]), pp. 4-8.

[2] McClelland and Lyons, Manpower Training, p. 5.

[3] William C. Osborn, Developing Performance Tests for Training Evaluation (Alexandria, Va.: Human Resources Research Organization, Professional Paper 3-73, [1973]), pp. 1-5.

With respect to packaged training programs, the following are illustrative of the kinds of work performed. Weingarten, Hungerland, and Brennan developed and tested an integrated, low-cost, generalizable instructional model appropriate for training men of widely varying, measured learning aptitude.[1] Fry and Cliborn developed and tested an in-unit leadership/management training program based on experiential methodology as opposed to the common trial and error method of learning to supervise.[2] Suchman, Kubala, and Taylor developed an open-access, performance oriented curriculum for the Military Police School that incorporates modern training technology, i.e., group problem solving and peer instruction, and the systems approach to curriculum development.[3]

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[1] Paul G. Whitmore, *Use of the Job Model Concept to Guide Job Description Procedures for Army Officers* (Alexandria, Va.,: Human Resources Research Organization, Technical Report 73-26, [1973]), pp. 7-11.

[2] Morris Showel, *An Evaluation of Alternative Programs for Training Beginning Typists in the Army* (Alexandria, Va.: Human Resources Research Organization, Technical Report 72-33, [1972]), pp. 51-55.

[3] John S. Caylor et al., *Methodologies for Determining Reading Requirements of Military Occupational Specialties* (Alexandria, Va.: Human Resources Research Organization, Technical Report 73-5, [1973]), pp. 45-56.

[4] Joseph A. Olmstead, Harold E. Christensen, and L.L. Lackey, *Components of Organizational Competence: Test of a Conceptual Framework* (Alexandria, Va.: Human Resources Research Organization, Technical Report 73-19, [1973]), pp. 15-21.

Need for the Present Study

Until the present study, the interorganizational model had not been applied to a public school system. This was a unique opportunity for investigation and analysis.

The purpose of the present study is to fill such a gap by investigating the results of the application of the interorganizational model in an educational setting and evaluating the extent to which educational objectives were achieved. ". . . we noted . . . , there was a paucity of case materials. We need more case studies which carefully document and report dissemination and utilization events . . . we would include here training projects, development projects, . . ."[1]

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[1] Kenneth Weingarten, Jacklyn E. Hungerland, and Mark F. Brennan, Development and Implementation of a Quality-Assured, Peer Instructional Model (Alexandria, Va.: Human Resources Research Organization, Technical Report 72-35, [1972]), pp. 3-8.

[2] John P. Fry and Robert E. Cliborn, Development, Implementation, and Evaluation of Leadership/Management Training Within Army Battalions (Alexandria, Va.: Human Resources Research Organization, Final Report FR-WD(TX)-75-11, [1975]), pp. 3-15.

[3] J. Richard Suchman, Albert L. Kubala, and John Taylor, The Development of an Open-Access, Performance Oriented Curriculum for Training the Military Policeman (MOS 95B20) (Alexandria, Va.: Human Resources Research Organization, Final Report FR-WD(CA)-75-9, [1975]), pp. 25-37.

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[1] Ronald G. Havelock et al. Planning for Innovation: A Comparative Study of the Literature on the Dissemination and Utilization of Scientific Knowledge (Bethesda, Md.: ERIC Document Reproduction Service, ED 029 171, 1969), pp. 11-2 - 11-3.

CHAPTER III

METHODOLOGY

Introduction

Since this study sought to examine the effects of an interorganizational change model on the compensatory education program operated by the River Rouge, Michigan School District, the case study method of research was employed. This research methodology was particularly appropriate because the ". . . case study may also be useful in demonstrating how a theoretical model can be exhibited in a concrete example."[1] This method also permitted an in-depth investigation of the life history of an educational program.[2] Viewed in terms of a study of a unit or segment of time, "A case is simply a particular instance, an illustrative situation or occurrence. In calling it particular, we emphasize its concreteness and uniqueness, its limit to a given time and place."[3]

Walton noted particular advantages to using the case study in situations involving change.

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[1] Gilbert Sax, Empirical Foundations of Educational Research (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1968), p. 290.

[2] Joseph E. Hill and August Kerber, Models, Methods, and Analytical Procedures in Educational Research (Detroit: Wayne State University Press, 1967), p. 109.

[3] John E. Wise, Robert B. Norberg, and Donald J. Reitz, Methods of Research in Education (Boston: D.C. Heath & Co., 1967), p. 114.

> The case study can attend to aspects of a change program which other methodologies cannot: namely, processes of change and change interventions. . . . Many elements of a change intervention are knowable only by studying the processes which mediate the intervention and the outcome.[1]

Furthermore, Walton pointed out that the case must ". . . contain longitudinal data from each of several phases--pre-intervention, intervention, and post-intervention . . . ."[2] By calling attention to the history of an organization, case studies also contribute to program evaluation.[3] This is precisely the purpose of the present study.

Data Sources

The main sources of data formed what can be considered a finite universe, composed of official documents, written records and written accounts, located in the files of the River Rouge School District and the Michigan Department of Education in Lansing, Michigan.

All official documents and written records (memoranda and reports) of pertinent events were employed as primary sources of data.

Methods of Data Collection

The instrumentalities and procedures composing the method of data collection employed in the study are presented below.

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[1] Richard E. Walton, "Advantages and Attributes of the Case Study," The Journal of Applied Behavioral Science 8 (January/February 1972): 72.

[2] Ibid., p. 76.

[3] Carter V. Good and Douglas E. Scates, Methods of Research (New York: Appleton-Century-Crofts, Inc., 1954), p. 730.

Instrumentalities

A locally constructed research matrix was used to facilitate data gathering. All sources of data available to the investigator were enumerated, and each source was marked for relevance to the appropriate operational hypothesis. Thus, the matrix served to guide the gathering of pertinent data. This matrix is presented in figure 2. In order to insure complete coverage of events and effects considered important to the development of the compensatory education program, a skeletal outline covering the questions to be answered was used to guide recording of data taken from the records.

Procedures

The procedures for the collection of data associated with the study effort were those involving the location, examination, and analysis of documents located in the files of the school district and the Michigan Department of Education. There were a number of stated outcomes which were used to measure the impact of the interorganizational model on the compensatory education program.

All proposals submitted by the change agent to the school district had a common goal: Improved student academic performance was to be achieved by making changes in the behavior of teachers. The first set of proposals offered to the school district proposed to obtain such change by requiring teachers to define their instructional goals in behavioral terms, use effective techniques for modifying students' behavior toward those goals, and require each and every student to exhibit the specified behaviors before progressing from one level of

RELEVANCE OF DATA FROM VARIOUS DATA SOURCES

Data Source	Data Relevance			
	Instructional Program	Teacher Behavior	Inservice	Student Performance
Annual California Achievement Tests				x
Title I, ESEA annual applications	x	x	x	
Chapter 3, annual applications	x	x	x	
Title I, ESEA annual evaluations	x	x	x	x
Chapter 3, annual evaluations	x	x	x	x
Purchase orders	x		x	
Diaries	x	x	x	
Memoranda	x	x	x	
Guidebooks	x	x	x	
HumRRO proposals	x	x	x	
HumRRO evaluation reports	x	x	x	x
Observational records		x		

Fig. 2. Research Matrix

ins[illegible]on to the next.[1] Another proposal stated, "HumRRO proposes to [illegible]vide to elementary teachers of the District explicit guided practice in techniques of individualized instruction."[2] A third proposal stated "To increase the number of teachers in the District who can more likely improve oracy skills in students, it is proposed to design and conduct two special inservice workshops."[3]

These outcomes have been converted into the following categories which were used to analyze the accumulated data:

1. Individualized instruction
2. Teacher behavior
3. Inservice teacher training
4. Student performance

To guide the accumulation of relevant and accurate data applicable to each of the above categories, several guidelines were identified, and they are presented next.

Individualized instruction. The school district's concept of individualized instruction determined the review of data sources pertaining to individualized instruction. An instructional program was construed as individualized if it contained a common body of content to be learned by all students. The material is organized by models in a hierarchy from simple to complex. The rate at which the content is mastered is governed by the individual student's capacity to learn; i.e., instruction is self-paced. An instructional management system is superimposed on the above process by which student progress through the learning sequence is monitored continuously.

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[1] Human Resources Research Organization, Fort Bliss Division, "A Proposal to Provide In-Service Teacher Training to Instructor Personnel of the River Rouge (Michigan) School District," Fort Bliss, Tx., 1970, p. 3. (Typewritten.)

[2] Human Resources Research Organization, Fort Bliss Division, "Organization and Conduct of a Workshop in Individualized Instruction for Personnel of the River Rouge (Michigan) School District," Fort Bliss, Tx., 1972, p. 1. (Typewritten.)

[3] Human Resources Research Organization, Alexandria, Va., "Research Proposal: Oral Language Training Program," Alexandria, Va., 1974, p. 1. (Typewritten.)

Using the definition above as a guide, data on the individualized instruction category were collected from annual Title I and Chapter 3 program applications which had been filed with the Michigan Department of Education for approval and funding. These documents supplied information about program objectives and the means by which the objectives were to be achieved.

To corroborate the stated intentions to individualize instruction, school district purchase orders issued between 1966 and 1975 were reviewed year by year. Purchases of instructional materials were grouped into the following types: (1) basal texts, (2) supplemental texts, (3) workbooks, (4) instructional games, (5) records and filmstrips, (6) individualized instructional programs, and (7) replacement materials for individualized programs. Tabulating the number of items purchased annually constituted one aspect of the analysis of the extent to which instruction was individualized.

Memoranda from the compensatory education director to administrators and teachers provided additional data related to individualization. So, too, did a diary and appointment book kept annually by the compensatory education director. These data sources contain dates, people contacted, business proposed and transacted, and places of contact and transaction.

Teacher behavior. Data with respect to the teacher behavior category were obtained from Title I and Chapter 3 program applications which were submitted annually for approval and funding. These documents contain statements of program goals and narratives of planned activities for accomplishing the goals. The director's diary and memoranda to teachers and administrators served as an additional data pool. Such information as dates, type of contacts with teachers, and topics discussed was contained in these records.

A major resorvoir of data was obtained from observational records kept on compensatory program teachers by the compensatory education director during 1970 to 1975. To fulfill his responsibility to manage project activities, the director regularly visited project teachers' classrooms. He observed the teacher-student interaction and tabulated the number and calculated the rate of teacher behaviors: response opportunities, approving behaviors, and disapproving behaviors. Response opportunities were defined to include any opportunity the teacher provided for a student to respond orally to a question related to academic content. Positive verbal remarks or gestures immediately following the student response were deemed approving behaviors. Disapproving behaviors were interpreted as negative remarks or gestures by the teacher in response to a student answer.

Inservice teacher training. In order to determine change in inservice teacher training, data were collected both from program applications and year-end evaluations which were submitted annually under the provisions of Title I and Chapter 3. The director's log and written communications served as particularly rich sources of documentation, as did inservice guidebooks and program evaluation reports which were prepared by the change agent for use in teacher training workshops. These documents produced the following pertinent information: (1) objectives of inservice training, (2) organizational methods and procedures employed to meet the objectives, (3) training program content, and (4) evaluation results.

Student performance. For the final category—student performance—data were obtained from Title I and Chapter 3 annual evaluations. These reports contain averaged pretest, posttest, and gain scores for compensatory education students for each of the years from 1966 to 1975. The scores were taken from the reading and mathematics sub-tests of the California Achievement Test and have been expressed in terms of grade equivalent units (these are required by program evaluation guidelines).

Additional student performance data were obtained from evaluation reports prepared by the change agent at the conclusion of each project. These reports contain detailed statistical analyses of student performance.

A final set of data was secured from pre- and post-administration of a specially constructed test of oral language capability. This criterion-referenced test was used to evaluate the effectiveness of an oracy training program for first and second grade students.

Analysis of Data

As the data of the study were collected, they were classified under one or more of the following four categories:

1. Individualized instruction
2. Teacher behavior
3. Inservice teacher training

4. Student performance

Data pertaining to each category were then divided into two sets: the first set described the category before the interorganizational model, and the second set described the category after the interorganizational model. Next, the material was analyzed in terms of each hypothesis using descriptive analysis of a narrative form. This process was supplemented by additional analyses, which are described next.

Individualized instruction. Data pertaining to individualized instruction before the interorganizational model and after it were compared in terms of statements of program objectives, type of instruction, and kinds of materials used. Thus, one aspect of the analysis constituted depicting change via narration.

To compensate for biases inherent in case study research, a panel of three judges was selected to determine programmatic change. The panel was composed of two neighboring public school curriculum directors and one college of education faculty member. These judges served as independent evaluators.

Summaries depicting events for each school year were prepared on index cards: a total of ten cards in all. Each summary included statements of program objectives, predominant instructional methodologies, and instructional materials used.[1] All references to specific dates were eliminated.

To familiarize them with their task, the judges were briefed about the kind of instructional program the school district sought to achieve with assistance from the change agent. Then, the judges were given the summary cards in scrambled order and were asked to divide the cards into two groups: a preprogram group and a postprogram group.

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[1] For a description of the summaries used see pp. 93-97.

Teacher behavior. Data pertaining to teacher behavior were treated by descriptive analysis and by statistical tests taken from evaluation reports prepared by the change agent. Data were compared across school years and within selected school years.

Inservice teacher training. Data related to inservice teacher training were treated in the same manner as those related to the individualized instruction category. A narrative described inservice training activities before and after the interorganizational model. The same panel of judges that analyzed the individualized instruction data sorted inservice summary cards.

The judges were presented summary cards containing statements which described salient characteristics of inservice training activities for each of the ten years investigated by this study. In the preparation of the summary cards, care was taken to mask any reference to specific dates.[1]

Each judge was asked to determine, in his estimation, which summary cards described more effective inservice training years and which years were less effective. For the two sets of cards produced, the judges were asked to indicate which set came first in time.

Student performance. Data pertaining to student performance were subjected to a comparison of achievement gain scores before and after the interorganizational model. For certain years, statistical analyses of program students' performance compared to nonprogram students were performed by the change agent. Their results were included as a part of the analysis of data.

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[1] For a description of the summaries used see pp. 149-153.

Methodological Weaknesses

Case study research sometimes involves utilization of the historical method of research. Because that method was employed in the present study, the personal biases and standards of the investigator have been introduced as sources of weakness.[1] Furthermore, personal inclinations may also produce predetermined explanations. "Perhaps the greatest pitfall in the examination and interpretation of case study data is the temptation for the researcher to project his own feelings upon the subject or to impose a predetermined and often stereo-typed explanation upon the data."[2]

If the human factors noted above can be constrained, an additional weakness must be taken into account. In case study research the power of generalization is restricted to the individual case. Generalizations drawn from a single case or a few casually selected ones can not be applied to all cases in a given population. Carefully conducted case studies are, however, capable of generating testable hypotheses for further research.[3]

Summary

This chapter has outlined the methodology of the study. A topical review of the sections presented will be helpful to an understanding of the remaining chapters. A brief listing and explanation of each of the areas discussed is illustrative: (1) the introduction to this chapter set forth the research design of the study, (2) data sources explained where the data were secured, (3) methods of data collection described how the data were collected, (4) analysis of data discussed procedures used to interpret the data, and (5) methodological weaknesses introduced uncontrolled variables.

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[1] Deobold B. Van Dalen, Understanding Educational Research: An Introduction, 3rd ed. (New York: McGraw Hill Book Co., 1973), p. 210.

[2] Wise, Norberg, and Reitz, Methods of Research, p. 118.

[3] Van Dalen, Understanding Educational Research, p. 211.

CHAPTER IV

FINDINGS

Introduction

To determine the effects of the interorganizational model on the compensatory education program conducted in the four elementary schools of the River Rouge School District four hypotheses were postulated. These hypotheses are as follows:

1. Application of the interorganizational model has resulted in increased usage of individualized instructional programs in reading and mathematics
2. Application of the interorganizational model has resulted in significant improvement in teacher classroom instructional behavior
3. Application of the interorganizational model has resulted in improved inservice teacher training activities
4. Application of the interorganizational model has resulted in significant improvement in student academic achievement in reading and mathematics

Pertinent data have been collected and organized according to one or more of the hypotheses above. Next, each hypothesis will be treated individually using a descriptive form to depict instructional programs as they have developed over time. Thus, the analysis of the data for this case will be presented mainly via narration of historical events from 1965 to 1975.

Individualized Instruction

Before the interorganizational model

1965-1966 school year

Compensatory education programs were first initiated by the River Rouge School District in early 1966 as a result of the enactment by the United States Congress of Title I of the Elementary and Secondary Education Act of 1965. This act provided financial assistance to school districts to develop educational programs to meet the special educational needs of educationally disadvantaged children.

School district personnel conducted a needs assessment at that time to determine the most pressing educational needs of the disadvantaged school-aged population, so that the appropriate educational program could be prepared. Survey results clearly indicated that the reading, mathematics, and language skills of disadvantaged students were the cognitive processes most in need of strengthening.[1]

Identified areas of student weakness determined the components that made up the Title I program for 1966. Program objectives were prepared to meet these areas of weakness, and they are presented below.

"1. To equip the learner with the basic skills necessary to read in terms of vocabulary, word attack skills, and comprehension.
"2. To improve and strengthen the student's ability to write in terms of mechanics of grammar, mechanics of expression, and creativity.
"3. To improve the child's ability to deal with numbers in terms of numbers concepts and basic computation."[2]

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[1] Fredric A. Rivkin, Memorandum on Needs Assessment, 13 January 1966, Federal Files, River Rouge School District, Michigan.

[2] School District of the City of River Rouge, "Application for Federal Assistance for the Education of Children from Low-Income Families, Title II, Public Law 81-874 as amended by P.L. 89-10, Title I," River Rouge, Mich., 2 February 1966, p. 1.

The plan set forth for accomplishing the above objectives was ambitious and far-reaching.

> To meet the child's reading needs, a reading center will be established for the purpose of diagnosing and evaluating reading problems and communication skills deficiencies. Serious reading problems will be treated in the reading center. Non-critical cases will be evaluated, and prescriptions for handling the individual will be given to the classroom teacher. This procedure provides for an instructional program tailored to the child's special educational needs.
> In addition to the activities of the reading center, remedial instruction in reading, science, mathematics, social studies, and language arts will be instituted in grades 4-12 within the regular school classroom. Appropriate material and equipment for remedial instruction will be placed in the teacher's hands so that prescriptions from the reading center can be carried out, as well as other remedial work for non-critical cases. Teacher aides will be utilized to provide the classroom teacher more time to devote to remedial instruction.[1]

The period following approval of the Title I program was devoted to securing remedial reading teachers to staff the reading center, ordering the needed instructional materials and supplies, and developing operational procedures for serving students.[2] When fully staffed and operational, the reading center plan called for children to be transported from their respective elementary school buildings to the centrally located center for their remedial reading instruction.[3] While no students were given direct instructional services during the regular school year, a program was planned for students during the summer.

For the summer of 1966, a special six week remedial reading program was offered to educationally disadvantaged children. "The goal of this program is to prevent some children from suffering reading handicaps and problems which might interfere with their success in school. And at the same time provide reading enrichment."[sic][1]

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[1] Ibid., p. 4.

[2] Compensatory education director's log for 1965-66.

[3] Fredric A. Rivkin, Memorandum on Reading Center Planning for 1966, 2 May 1966, Federal Files, River Rouge School District, Michigan.

Since the summer program had to be hastily prepared, the teachers selected for use instructional materials readily available to them. Consequently, a conglomeration of materials was used that enabled the teachers to organize and carry out instruction as they saw fit to do so. The resulting general instructional mode was one of total group instruction at a fixed pace.[2]

1966-1967 school year

The 1966-67 Title I program sought to improve both student academic performance and student attitude by introducing innovative and effective instructional programs and activities.

> The overall objective of Project RANGE is to create the conditions whereby educationally deprived children can learn better and achieve more effectively in school. Specifically, the goals of RANGE are:
>
> 1. To improve classroom performance in reading beyound usual expectations.
> 2. To change (in a positive direction) the children's attitudes toward school and education.
> 3. To improve the child's self-concept.[3]

With the main thrust of the Title I program being improved reading on the part of students, a comprehensive plan was prepared that would deliver instruction in the most effective manner: one is which elements of individualized instruction are contained.

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[1] "Title I Application," February 1966, p. 10.

[2] Compensatory education director's log for 1965-66.

[3] School District of the City of River Rouge, "Application for Federal Assistance for the Education of Children from Low-Income Families under Title I of Public Law 89-10," River Rouge, Mich., 10 August 1966, p. 1.

The proposed Reading Center will implement a comprehensive expansion of the present Reading Program for grades 1 through 12. In addition to supplementing present reading instruction services, the proposed Reading Center will add to the present Reading Program a few facets:

1. Individual diagnosis and evaluation of reading problems will be provided for elementary school children referred to the Center by classroom teachers through school principals. Following comprehensive individualized testing of each child, diagnosis and evaluation will be by the Center staff in consultation with the child's teacher and (as needed) other school personnel, such as the psychologist, nurse, and principal.
2. Children whose reading problems are deemed critical will be provided individualized remedial reading instruction. This program will be conducted by Center personnel in consultation and cooperation with the classroom teachers and other school personnel.
3. For children whose reading problems are deemed non-critical, the Center staff will provide recommendations for an individualized instructional program to be administered by the classroom teachers who referred them to the Center. The Center will provide each teacher with appropriate remedial reading instructional materials. Center personnel will follow-up the progress of each child and will be available to the teacher for support services.[1]

Since the reading center was centrally housed and staffed by two reading specialists whose prime responsibility was to provide instruction to students coming to them, large numbers of instructional materials were needed. These materials are indicative of the teaching methodology in use, whether it be conventional or individualized. Serving as the instructional core, a comprehensive, grades one through nine, remedial reading program was purchased.[2] The Remedial Reading Laboratory, published by the Rheem Califone Corporation, is a multi-modal, multi-media reinforcement laboratory that involves the use of all learning senses. The organization of the instructional content of the program allows the teacher to select the appropriate materials to treat those skills in which the student is deficient.[1] This program was supplemented by the purchase of 1,395 multi-purpose and graded reading workbooks to be used by students for practice purposes. For enrichment, three libraries of multi-level books were ordered.[2]

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[1] Ibid., p. 3.

[2] Purchase orders authorized by the River Rouge School District during the 1966-67 school year.

Reinforcement of reading center instruction was provided by several innovations introduced during 1966-67. These included the creation of a learning materials center, an after-school reading program, and a tutoring program.

The learning materials center was conceived to provide more opportunities for reading improvement within a free and open environment.

> At the Walter White Elementary School a learning materials center has been created. Facilities and services at this center (now located in a portable classroom) will be augmented and expanded to form a Self-Paced Education Activity Room (SPEAR). This Center will provide a place where children will go for voluntary independent study and enrichment. An after-school program has been arranged so that children may study in SPEAR for one hour per day, three days per week for thirty weeks. The room will also be open during school hours for class and individual use.
>
> The room will contain a variety of self-paced autonomous learning units, such as the SRA series. There will also be available standard reference works such as encyclopedias. In the room will be a variety of audio visual devices that will enable children to obtain direct experiences with events of interest to them; for example, there will be stereoscope equipment and supplies for viewing a large variety of scenes from various parts of the world. There will also be materials and supplies for autonomous exploration of scientific and natural history materials: kits will be available for manipulation of spatio-mathematical relationships, observation of demonstrations of physical principles, etc.[3]

A wide assortment of learning materials were ordered for this program component. A total of twenty multi-volume sets of reference materials were secured. These sets included several encyclopedia, science and social studies references, and books of a general reading nature.[1]

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[1] "Rheem Califone Remedial Reading Laboratory,": n.d., p. 2. (Typewritten.)

[2] Purchase orders authorized by the River Rouge School District during the 1966-67 school year.

[3] "Title I Application," August 1966, p. 5.

While there is no evidence that the learning materials center directly supported the reading center activities, disadvantaged students did have an opportunity to do more independent reading.

More direct follow-up of reading center services was provided by initiating an after-school reading program.

> An after-school program will be set up, modeled on the summer RANGE program (Rouge's Approach to Necessary Goals in Education). This program will be for two groups of children:
> (a) children who participated in the 1965-66 RANGE program, but did not show improvements deemed appropriate for their judged (tested) aptitude levels;
> (b) children who were not participants in the summer program, but whose reading achievement scores were in the same low range as those scores earned by children who did participate.
>
> For the after-school RANGE program, twenty teachers will be employed for one hour, three days per week for ten weeks. These teachers will employ individualized diagnostic test batteries to plan and implement completely individualized remedial reading programs for each participant child. Each individualized RANGE program will be supplemented by home and school efforts to improve the child's reading, coordinated by conferences among RANGE personnel, Reading Center staff, parents, teachers, and other school personnel.[2]

As in the summer 1966 reading program, teachers used reading materials for students obtained from their own classroom. Limited instructional materials were provided by the reading center.[3]

As a further supplement to the reading center and the after-school reading program, a tutorial program was offered to students experiencing difficulty with their academic studies.

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[1] Purchase orders authorized by the River Rouge School District during the 1966-67 school year.

[2] "Title I Application," August 1966, p. 7.

[3] Ann Thompson, Memorandum to After-School Reading Teachers, 6 March 1967, Federal Files, River Rouge School District, Michigan.

> In an attempt to help students acquire the skills and attitudes needed to become independent and autonomous learners as well as perform better academically, the Tutorial Centers will function as follows:
>
> 1. Help students in the preparation of homework assignments in an atmosphere conducive to good learning.
> 2. Assist the student in comprehending difficult concepts not understood during regular classroom presentation.
> 3. Train the student in the use of study skills.
>
> In addition to general tutoring, several Skill Stations will be maintained in each Tutorial Center. Specialists in various disciplines, such as mathematics, language arts, and science, will be assigned to each Station. These experts will provide assistance of a specialized nature to tutorees.
>
> Pervading the activities of this program will be an emphasis on the acquisition and utilization of productive study skills. Students will be taught how to organize their homework tasks as to complete them in the most accurate and efficient manner. Conjointly, tips on outlining and note taking will also be offered to students studying for tests and preparing research reports.[1]

Rounding out the Title I activities for the 1966-67 school year, a summer remedial reading program was offered as a means of sustaining reading achievement gains made by students during the preceding year.

> A summer remedial reading program will be offered to approximately 400 children in grades 3 through 7. Most of the children participating in this program will have been involved in either the after-school reading program or the tutorial program. Consequently, these children will be recipients of additional help during the summer.
>
> The summer program will be patterned after the currently successfully operating reading program described in the section titled after-school RANGE.[2]

The Title I program components described above focused primarily on remedial kinds of programs in which student deficiencies were identified and instruction was aimed at those weaknesses. With the exception of the reading center operation, teachers selected and used whatever instructional materials they deemed appropriate for remediation.

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[1] "Title I Application," August 1966, p. 12.

[2] Ibid., p. 17.

Reference was made to individualization of instruction with regard to those students identified as reading disabled. However, in actual practice instruction occurred in group settings with all students working on the same content at a given pace.

1967-1968 school year

Again in 1967-68, the Title I program took on a remedial orientation. Instruction via a reading center was the vehicle by which disadvantaged students were to improve their reading capabilities. The objectives for the 1967-68 Title I program were as follows:

"1. Improve classroom performance in reading beyond usual expectations.
"2. To change (in a positive direction) the children's attitude toward school and education.
"3. To improve the child's self-image."[1]

Because of a substantial reduction in Title I funding, most of the previous year's components were eliminated, leaving the reading center operation as the major Title I activity.

> The proposed Reading Center will implement a comprehensive expansion of the present reading program for grades 1 through 12. In addition to supplementing present reading instruction services, the Reading Center will add to the present reading program some new facets:
>
> 1. Individual diagnosis and evaluation of reading problems will be provided for elementary school children referred to the Center staff by classroom teachers through school principals. Following comprehensive individualized testing of each eligible child, diagnosis and evaluation will be by the Center staff in consultation with the child's teacher and (as needed) other school personnel, such as the psychologist, nurse, and principal and parents.
> 2. Children whose reading problems are deemed critical will be provided individualized remedial reading instruction. This program will be conducted by Center personnel in consultation and cooperation with the classroom teachers

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[1] School District of the City of River Rouge, "Application for Federal Assistance for the Education of Children from Low-Income Families under Title I of Public Law 89-10," River Rouge, Mich., 18 August 1967, p. 3.

and other school personnel.[1]

The diagnostic and prescriptive approach taken by the reading center teachers required extensive and varied instructional programs and materials. Guiding the purchase of materials was the desire to place each student in a set of learning materials appropriate to his reading ability. Thus, the reading center's materials holdings were substantially increased by the acquisition of the following: sixty-one libraries, each of which contained an assortment of graded general purpose reading books, a set of 240 graded basal readers to be used as supplementary material, 900 workbooks for practice in phonics and reading comprehension, and three perceptual training programs, each of which accommodates approximately twenty-five students.[2]

The Title I program was supplemented by a second compensatory education program begun during the 1967-68 school year under the provisions of Section 4 of the Michigan State School Aid Act of 1966.[3] Essentially the same as Title I, Section 4 provided financial assistance to local school districts for the operation of educational programs to meet the need of underprivileged children.

Since the reading needs of disadvantaged children were being met by the Title I program, Section 4 programming concentrated on improving student language development at the kindergarten through third grade levels. Deemed to be a precursor and necessary requirement to learning to read, language development was limited to listening and speaking. As set forth in the application, the program goals included:

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[1] Ibid., p. 7.

[2] Purchase orders authorized by the River Rouge School District during 1967-68.

[3] Compensatory education programs in eligible Michigan school districts were funded by the provisions of Section 4 from 1966 to 1968. This program was redesignated Section 3 from 1969 to 1973. In 1974, Section 3 was changed to Chapter 3.

"1. Children will be able to talk in more complex thoughts.
"2. Children will utilize more adjectives and adverbs in describing objects and events.
"3. Children will develop increased perceptual and auditory skills."[1]

The instructional program devised to accomplish the above objectives was as follows:

> Classroom teachers will provide instructional activities using special materials that will lead to these objectives. . . . Teachers will be assisted by teacher aides in providing the needed individual attention to students. . . . An attempt will be made to create an ungraded arrangement to allow the child to move at his own pace.[2]

That teachers did acquire special instructional materials is supported by the wide variety and quantity of purchases made. A total of 232 educational games, each costing less than ten dollars, and related to reading, mathematics, and perceptual and language development, were ordered during the project year. Fifty-five sets of phonograph records were also obtained. The largest dollar expenditures went for thirty-four self-contained kits of prepared lessons and materials designed to stimulate oral language and intellectual development.[3] Methodologically, "The lessons promote active participation by essentially all children in the class or group."[4]

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[1] School District of the City of River Rouge, "Application for State Aid for Programs for Underprivileged Children," River Rouge, Mich., September 1967, p. 2.

[2] Ibid., pp. 2-4.

[3] Purchase orders authorized by the River Rouge School District during 1967-68.

[4] *1967 Catalogue* (Circle Pines, Minn.: American Guidance Service, Inc., 1967), p. 37.

As Title I followed a predominantly diagnostic and prescriptive approach to treating reading deficiencies, Section 4 sought to overcome student language problems by essentially providing instructional materials and para-professional assistance directly to the classroom teachers whose responsibility was to develop and carry out their own kind of instructional program.

1968-1969 school year

During the 1968-69 school year, both the Title I and Section 4 programs remained basically unchanged from 1967-68.[1] While the Section 4 goals were retained from the previous year, implementation of the program was severly limited because of a seventy-five per cent cutback in funding. Consequently, less special instructional programming was provided the students, and more attention was devoted to teacher training activities.[2]

Title I expenditures for instructional materials during 1968-69 fell into the same general categories as those of preceding years, but quantities ordered were larger. Sixty-four sets of multi-level reading books were obtained. A set of 843 supplementary basal readers were also ordered; a twenty-eight per cent increase over the previous year. A total of 2,700 reading and mathematics workbooks was acquired; a three fold increase over 1967-68.[3]

In spite of the reduction of Section 4 funds during 1968-69, some instructional materials were purchased. These included seventy-four perceptual development games and four sets of pre-recorded cassette tapes containing children's literature.[1]

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[1] See pp. 54-56.

[2] See pp. 117-118.

[3] Purchase orders authorized by the River Rouge School District during the 1968-69 school year.

1969-1970 school year

Remedial reading again was the major focus of the Title I program for 1969-70. While the reading objective remained constant, a more specific standard of student performance was added. "Students will show an improvement of one grade level of reading (and language) achievement or better."[2] The reading center teachers continued their practice of providing diagnostic and remedial service to students outside their regular classrooms.

The educational materials purchased during 1969-70 were again used primarily for remedial and group-paced types of instruction. Ten sets of multi-volume, multi-interest reading books were bought with Title I funds for enrichment purposes. To serve as a supplement to the basal reading program, another 408 reading books were ordered. And again, a large number of workbooks for reading were ordered: this year the total was 2,495.[3]

With the enactment of the Michigan State School Aid Act in 1969, Section 4 was renumbered Section 3. The goal of this program was unchanged: to meet the needs of underprivileged children by reducing the adult-pupil classroom ratio.[4] Thus, improving the reading and mathematics performance of underprivileged children was to be accomplished by adding additional professional and para-professional personnel.

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[1] Ibid.

[2] School District of the City of River Rouge, "Application for ESEA Title I program," River Rouge, Mich., August 1969, p. 6.

[3] Purchase orders authorized by the River Rouge School District during 1969-70.

[4] Michigan, Section 3 of Act No. 312 of the Public Acts of 1957 as amended, 75th Legislature, regular sess., 1969, p. 2.

More specifically, the Section 3 program sought to achieve the following objectives:

"1. To improve achievement by one grade level in reading, mathematics, and language skills.
"2. To increase pupil verbal communication."[1]

How this was to be accomplished is presented below.

> The Intervention Teachers (IT) will intervene at critical learning phases of the pupil's development. Children identified by K-3 Teachers as encountering obstacles at certain stages of cognitive and skill development will be assigned to the IT's. IT instruction will consist of thorough diagnosis of learning difficulty and appropriate grouping, culminating in the performance of individual and self-paced instruction. The incidence and degree of learning difficulty will determine grade level intervention.
>
> Para-professionals will be placed in the classroom with K-3 and Intervention Teachers for the purposes of relieving the teacher of non-instructional duties and for strengthening the teacher's instructional activities.[2]

Implementation of the above plan was delayed six months because of a challenge to the constitutionality of one of the provisions of Section 3. In February 1970 this matter was resolved, and amendments were made to the Section 3 program to release the school district from responsibility for improving the reading and mathematics levels of students and allow for inservice training of teachers and teacher aides to take place.

> The major objective of this program will focus on the teacher-para-professional relationship during the regular school year. The main objectives are: (1) to train classroom para-professionals to perform the duties and tasks as specified by the teacher; (2) to establish a harmonious role and working relationship between

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[1] School District of the City of River Rouge, "Application for Program Grant Under Section 3 of Act 312, P.A. 1957 as Amended, Part II," River Rouge, Mich., 15 September 1969, p. 7.

[2] Ibid., p. 8.

the teacher and the classroom para-professional.[1]

Starting late in the 1969-70 school year and emphasizing staff development, the bulk of the Section 3 money was spent for personnel and training. Educational materials purchased consisted mainly of inexpensive games, sets of flash cards, and wall charts. A total of 594 such items were ordered by classroom teachers involved in the Section 3 program.[2]

Dissatisfied with (1) the progress disadvantaged students were making, (2) using basically the same delivery system, and (3) ordering the same kinds of materials and programs annually, the compensatory education director presented his findings to an external change agent: Human Resources Research Organization (HumRRO).[3] HumRRO was asked to help improve the instructional components of the compensatory education program.

Based on their need for further clarification of the problem, a HumRRO researcher was sent to meet with school district administrative personnel. Prior to the arrival of the HumRRO scientist, the curriculum coordinator forwarded a memorandum to the superintendent describing the nature of the forthcoming meeting.

> In discussions with the HumRRO people, the compensatory education director, myself, and others, we have gradually changed our thinking about the nature of our compensatory education program and now propose the following:
>
> 1. Section 3 is intended to improve the instructional program K-3 in two ways:
>   a. Provide for in-service education for teachers.

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[1] Addendum to 1969-70 Section 3 Application, 14 February 1970.

[2] Purchase orders authorized by the River Rouge School District during 1969-70.

[3] 15 January 1970, meeting of the compensatory education director and HumRRO researchers at the Presidio of Monterey, California.

> b. Provide additional adult persons in the classroom to free the teacher for individualizing instruction.
>
> 2. . . . As a part of our exploratory discussions, HumRRO has been contacted and a representative from the organization is being sent to further clarify our intentions, our expectations, and our perceptions regarding the program. Based on those discussions we will have to make decisions to move in this direction or not. The HumRRO representative is being sent to us on Friday, January 30th. I believe it would be helpful to include the Superintendent, Deputy Superintendent, Curriculum Coordinator, Compensatory Education Director, and the elementary school principals.[1]

As a result of this meeting and subsequent ones between the compensatory education director and the change agent, HumRRO proposed a training program that would lead to implementation of the following instructional practices:

"1. Development and use of behavioral objectives.
"2. Implementation of concepts of learning modules and mastery tests.
"3. Employment of contingency management techniques in the classroom."[2]

In April 1970, under contract with the school district, HumRRO began preparations for a summer program whose primary objective was one of teacher training. A secondary purpose was improvement in student reading, mathematics, and motivation toward learning.

As it was carried out, the summer program involved twenty-four elementary school teachers who were to learn innovative instructional processes and try them out in their classrooms. These processes included the following:

"1. Introduction of behavioral objectives as a basis for teaching and testing activities
"2. Application of contingency management techniques for controlling student behavior in the classroom

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[1] Jack Cleveland, Curriculum Coordinator to Robert E. Rowe, Superintendent, 23 January 1970, Federal Files, River Rouge School District, Michigan.

[2] Human Resources Research Organization, Contract with the River Rouge (Michigan) School District, 2 April 1970. (Typewritten.)

"3. Requiring all students to learn to master each part of the instructional program"[1]

The summer program consisted of instruction given to students in both reading and mathematics. Instead of teaching from a single text for each subject, teachers were asked to use their basal reading and mathematics texts in preparing sets of pupil performance objectives for both content areas.[2] Next, the objectives were to be organized into modules or units and serve as the basis on which instruction was to be given.[3] To reduce the chore of preparing learning activities for each objective generated the teachers selected appropriate activities from an assortment of multi-grade level reading and mathematics workbooks which were ordered for this program. By the end of the program, the concepts and practices of individualization of instruction had been introduced and tried out on a limited basis by compensatory education teachers as a group. Follow-up was needed to support teachers' efforts toward individualization, and this component was contained in the school district's 1970-71 Section 3 program.

After the interorganizational model

1970-1971 school year

Reflecting HumRRO's influence on the district's compensatory education program, the objectives for the 1970-71 Section 3 program were as follows:

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[1] William H. Melching, Edward W. Frederickson, and Paul G. Whitmore, Introducing Innovation in Instruction: In-Service Teacher Workshops in Classroom Management (Alexandria, Va.: Human Resources Research Organization, Technical Report 70-104, [1970]), p. 4.

[2] Ibid., p. 12.

[3] School District of the City of River Rouge, "Learning Modules and Pupil Performance Objectives for Reading and Arithmetic for Grades K-3," 1970. (Typewritten.)

> "1. Within the framework of instructional objectives and contingency management techniques, target students will show a statistically significant gain in reading and arithmetic compared to a control group.
>
> "2. Within the framework of instructional objectives and contingency management, target students will exhibit a better attendance rate than the control group."[1]

These objectives were to be achieved by having teachers who were trained in the HumRRO program during the summer of 1970 utilize instructional objectives in their teaching of reading and mathematics and to use contingency management techniques as a means of motivating students to achieve their assigned academic tasks.

During the operation of the Section 3 program, the compensatory education director visited and observed the classroom teachers carrying out their instruction programs. In his mid-year report on the progress of the program an assessment was made of the degree of utilization of instructional objectives.

> Of the 24 teachers, 13 report that the objectives are useful as a guide in reviewing the previous year's instruction given the pupil. The objectives are also useful to some in planning daily activities and determining the content to be taught. A few teachers are using the Exit Behaviors as minimum goals which must be met by each pupil. Two teachers have prepared check lists based on the objectives to record pupil progress and have moved toward more individualized instruction.[2]

Reporting to the River Rouge Board of Education on the goals of the Section 3 program, a HumRRO staff member described the instructional efforts as follows:

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[1] School District of the City of River Rouge, "Application for Program Grant under Section 3 of Act 312, P.A. 1957 as amended, Part II," River Rouge, Mich., 1 September 1970, p. 6.

[2] Fredric A. Rivkin, "An Interim Report of the HumRRO Project in the River Rouge School," 10 December 1970, Federal Files, River Rouge School District, Michigan, p. 3.

> . . . The teacher who used her objectives properly has exact information on the progress of each of her students on an almost day-to-day basis . . . .
>
> The second part of the River Rouge project is concerned with the organization of the instructional objectives into mastery modules. Administrative requirements imposed on teachers are not always compatible with the students' capabilities. Because teachers are confronted with the need to 'cover' a stated amount of material in a given period of time, there is often a tendency to present instruction faster or in greater chunks than some students can effectively assimilate it. While the student is still struggling to attain previous objectives, instruction on new objectives is begun. He may never have the opportunity to go back and learn what he missed.
>
> This problem has been handled . . . by dividing the material to be learned into small segments or modules. Each module has a set of objectives which the student must master before he can go on to the next module. Each student must attain each objective . . . . All objectives must be fully attained by all students. In addition, individual student progression is based on individual attainment of objectives . . . .[1]

Clearly, the requisite elements of individualization were being acknowledged and advocated as a desirable and effective instructional methodology. As the rationale for this approach was being disseminated further, teachers were implementing rudimentary practices as preparation for later use of packaged and comprehensive individualized instructional programs. In fact, no Section 3 purchase orders were issued for instructional materials during the 1970-71 school year.[2] Section 3 money was used, instead, for teacher aide salaries and inservice training activities.

While the Section 3 program sought to improve the achievement level of low achieving students by means of individualizing instruction, the 1970-71 Title I program continued with its remedial orientation toward reading and language instruction. Unchanged from the previous year, the objectives were:

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[1] Paul G. Whitmore, Report to the River Rouge (Michigan) Board of Education, 27 January 1971. (Typewritten.)

[2] Purchase orders authorized by the River Rouge School District during 1970-71.

"1. To show a statistically significant gain in the diagnosed reading difficulty. This may be interpreted to mean an improvement of one grade level of reading achievement or better.
"2. To show a statistically significant gain in the diagnosed language difficulty. This may be interpreted to mean an improvement of one grade level of language achievement or better."[1]

The above objectives were to be achieved by preserving the reading center paradigm.

> Reading Center staff will provide reading instruction on a daily basis for 40 weeks during the regular school year. Six weeks of daily reading instruction will be given during the summer of 1971. Reading instruction will be of two kinds: Remedial and Enrichment. Teacher aides will be employed to assist the teacher in working with pupils receiving special reading instruction.[2]

As in preceding years, children experiencing reading difficulty were referred by their classroom teacher to a reading center teacher who diagnosed the student's deficiency and provided appropriate instruction outside the student's regular classroom.

The reading teacher continued to draw upon a vast reservoir of reading materials housed in the reading center. During 1970-71, its collection of specialized materials was enlarged by the purchase of 164 supplementary basal readers, 45 instructional games, 11 sets of phonograph records containing children's literature, 1,134 reading workbooks, and 8 packaged remedial reading programs.[3]

The evidence presented so far indicates that the trend followed by the Title I program during the latter half of the 1960's persisted into the 1970-71 school year. However, a major change had occurred in the thinking of the Title I remedial reading teachers.

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[1] School District of the City of River Rouge, "Application for ESEA Title I program, Part II," River Rouge, Mich., 27 August 1970, pp. 17-18.

[2] Ibid., p. 19.

[3] Purchase orders authorized by the River Rouge School District during 1970-71.

In February, 1971 a reading committee was formed by the district's curriculum coordinator to review and select a new reading program for the school system. Of the eleven teachers on the committee, nine, including the four Title I reading teachers, had participated in the 1970 summer HumRRO workshop. A series of meetings were held in the spring to identify a conceptual framework for reading instruction and develop a set of procedures for evaluating various reading programs in terms of committee-generated criteria. The results of these meetings were communicated to the superintendent and elementary principals by the curriculum coordinator.

> "The reading committee accepted as its goals:
> "A. To develop a sequence of skills children must acquire leading to effective reading skill.
> "B. To state in behavioral terms, with the level of performance, the objectives for each skill.
> "C. To develop strategies for teachers, to use which will insure the child's continuous progress.
> "The task of the reading committee, beginning in September, 1971 will be:
> "A. We will study objectives of available reading systems.
> "B. We will study both reading materials and equipment to implement reading systems.
> "C. We will make a recommendation regarding reading systems by December 1, 1971. . . ."[1]

The choice of this committee was the Houghton Mifflin Reading Program, a K-7 objective-referenced basal reading series which allowed for skill level placement, mastery of skills, and student regulated continuous progress. Formal adoption of the reading series occurred on 9 December 1971.[2]

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[1] Jack Cleveland, Memorandum to Superintendent and Administrative Staff, 14 June 1971, Federal Files, River Rouge School District, Michigan.

[2] School District of the City of River Rouge, Michigan, Minutes of the Board of Education meeting of 9 December 1971. (Typewritten.)

Concurrently, HumRRO had been awarded another contract by the compensatory education program to conduct a workshop similar to that of the previous year for an additional twenty-five elementary teachers during the summer of 1971.[1] Whereas the first group was limited to teachers of kindergarten through grade three, the second group was expanded to include teachers of kindergarten through the sixth grade.

On 3-4 May 1971, the compensatory education director and HumRRO scientists met at Fort Bliss, Texas to discuss the kinds of instructional materials to be ordered for teacher use in the forthcoming summer workshop. Since the compensatory education program goals sought to achieve individualized instruction, it was agreed that the modularized and graded reading kits published by Science Research Associates, Inc. be used for reading instruction. The learning principles and content organization of these kits match the concept of individualization being advocated by HumRRO.

> The Reading Laboratory Series is a reading system based on the principle that learning will be most effective if the student starts at his own level and proceeds as fast and as far as his learning rate and capacity allow.
>
> Within this system each student has his own program, which begins at the point at which he successfully reads and comprehends. He is thus motivated from the beginning and retains his sense of personal achievement as he progresses and competes with himself.
>
> The skills taught in the program are ranked on a continuum of difficulty from easy to hard, to accommodate each student's individual capacity. Both immediate and long-range feedback are provided, to help students evaluate their progress. Skill using is related to skill getting; students are rewarded and motivated by being able to enjoy more sophisticated stories as their skills increase.
>
> The multi-level teaching-learning materials of the Reading Laboratory Series make up a unified and individualized program that can be used throughout the grades to encourage new achievement levels.[2]

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[1] For a description of the 1970 summer workshop see pp. 122-124.

[2] 1971 Catalog (Chicago: Science Research Associates, Inc., [1971]), p. 26.

For mathematics, an individualized program, called Math Modules was selected.

> MATH MODULES is an individualized modern mathematics program for elementary school students. In this program, students concentrate on only those mathematical skills and concepts that they have not previously developed and mastered. MATH MODULES enables teachers to cope with the complex problem of having to teach students with diverse abilities and varying degrees of competence . . . .
>
> The program can be implemented with small or large groups of students within the usual classroom setting . . . .
>
> MATH MODULES is organized by learning areas: . . . Each learning area is divided into a maximum of seven ability levels, a range which includes all elementary classes. At each level a group of related skills is taught. . . .
>
> The curriculum for a module is taught through a series of skill booklets. Each booklet within a module is designed to teach one skill.[1]

Distar Reading was chosen as the instructional program for students in kindergarten and first grade. This program was especially suitable because of its content organization and specific teaching procedures.

> The Distar Reading Program can be considered an instructional system because of the way it was constructed.
>
> 1. Educational objectives must be stated as a series of specific tasks.
> 2. Everything that follows, the analysis, the development of specific teaching presentations, and the teacher's behavior, must derive from the objective tasks.
> 3. The analysis must be made by noting every concept needed for successful performance of the tasks.
> 4. Tasks that teach these concepts must be specified.
> 5. Each presentation designed to teach a given concept must admit of one and only one interpretation.
> 6. For clarity and maximum feedback of information from the performance of children, the program should be designed so that the child learns one new concept at a time.
> 7. The program must be evaluated in terms of whether the children meet the various criteria of performance specified by the objectives.[2]

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[1] Math Modules, Teacher's Guide (New York: Meredith Corporation, [1971]), p. 1.

[2] Siegfried Engelmann, and Elaine C. Bruner, Distar Reading Teacher's Guide (Chicago: Science Research Associates, Inc., [1969]), p. 9.

Orders were placed for thirty-four SRA Reading Laboratories, seven sets of Math Modules, and five sets each of Distar Reading, Distar Mathematics, and Distar Language.[1]

During the twenty day summer workshop, each teacher gained first-hand experience using one or more of the above individualized programs. Working with near normal sized classes, the teachers learned to test and place students at their appropriate program entry points, manage student self-paced learning, employ effective motivational techniques, provide detailed and timely feedback to students, and record and monitor student progress. In other words, they learned how to individualize introduction.

1971-1972 school year

During the school year following this workshop, as well as after the 1970 workshop, a follow-on program was conducted in which the primary goal was to facilitate attempts by teachers to implement the techniques and procedures they had learned in the summer workshops in their regular classes. Both Title I and Section 3 funds for 1971-72 were used to develop a coordinated approach toward individualization of instruction and improved student learning.

In seeking to enable each targeted and disadvantaged student to gain one month (expressed in grade equivalent units) in reading achievement for each month in the reading program, Title I provided remedial reading instruction, as in prior years, via remedial reading teachers assigned to each elementary school.[1] Reinforcement of the reading teacher's instruction was to be provided by the student's classroom teacher who ". . . either has been or will be trained to individualize instruction and to employ special classroom management techniques to motivate pupils to learn as a part of the HumRRO program."[2]

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[1] Purchase orders authorized by the River Rouge School District during 1970-71.

For the 1971-72 school year, Section 3 was drastically revised. Raising the achievement level of disadvantaged students continued to be the ultimate goal of the legislation. School districts participating in Section 3 were mandated to conduct

> . . . comprehensive compensatory education programs designed to improve the achievement in basic cognitive skills of pupils enrolled in grades K-6 who have extra-ordinary need for special assistance to improve their competencies in such basic skills. . . . .
>
> The districts have identified the performance objectives of their compensatory education programs. Performance objectives shall be concerned primarily with the improvement of pupils' performance on the basic cognitive skills. . . .
>
> 'Basic cognitive skills' means communication skills and computational skills.[3]

Great latitude was afforded school districts in developing their compensatory education programs.

> A district receiving monies under this section may use these monies in any manner, which, in the judgement of its board of education and its staff, will contribute significantly toward substantial improvements in the basic cognitive skills of the pupils.[4]

The most significant aspect of the Act was an accountability provision that tied future funding to individual student performance.

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[1] School District of the City of River Rouge, "Application for ESEA Title I program," River Rouge, Mich., June 1971, p. 10.

[2] Ibid., p. 12.

[3] Michigan, The State School Aid Act (1971), sec. 3-1.

[4] Ibid., Subsection 5d.

> As a condition of receiving monies for use in fiscal years following 1971-72, an assessment or evaluation of the progress of each pupil construed to be in need of special assistance under the section shall be made with the use of pretests and posttests . . . for each pupil making a minimum gain during the year of at least 75% of the skills in the performance objectives specified for his program, the district shall receive the full per pupil amount of Section 3 funds allocated to the district . . . for those pupils who do not achieve at least 75% gain, the district shall receive in the subsequent year an amount per pupil prorated in the proportion that the amount of actual gain made bears to 75% of the total skills listed for the programs provided these pupils.[1]

Improved reading and mathematics instruction and student performance became critical matters in the district's 1971-72 Section 3 program. As described in the Section 3 application, identified Section 3 students were to receive regularly scheduled instruction in both reading and mathematics given by their regular classroom teacher. The instructional processes to be employed by the teachers included the use of behavioral objectives, mastery modules, contingency management, and individualized instruction.[2] Successful implementation of the above practices was to result in Section 3 pupils achieving the legislated achievement gain criterion in basic cognitive skills.

Teachers participating in both Title I and Section 3 programs were called together in September 1971 and were asked to work toward several objectives directly related to HumRRO-suggested instructional practices.

"1. Create a positively reinforcing non-aversive learning environment in the classroom.

"2. Use pupil performance objectives in the teaching of reading and arithmetic. Use a check-off system to record pupil achievement of objectives.

"3. Provide opportunities for pupils to learn on an individualized or self-paced basis.

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[1] Ibid., subsection 7.

[2] School District of the City of River Rouge, "1971-72 Application for Program Grant under Section 3," River Rouge, Mich., 5 November 1971, p. 4.

"4. Use Contingency Management procedures and techniques . . . to change pupil behavior (social and academic) as the need arises.
"5. The achievement of these objectives should result in each Section 3 pupil in the class improving by one grade level in reading and arithmetic."[1]

Progress of the compensatory education program was monitored on a regular basis by the director. Visiting classrooms and talking with teachers produced an abundance of data on the individual and collective efforts of teachers as they attempted to individualize instruction. This information was also disseminated to program teachers via an in-house newsletter.

Two months after the compensatory education program had become operational, five teachers had begun to individualize instruction. Two of these teachers were using objectives in their teaching of reading and mathematics and had established a check-off system for student mastery of the objectives; one had even reorganized her mathematics instructional activities to allow for individualization. The remaining three teachers, working as a team, implemented the individualized Math Modules program.[2] By the end of January 1972, nineteen additional individualized instructional programs had been initiated by nine more classroom teachers. By content areas, eight were in reading, eight in mathematics, and one each in English grammar, vocabulary, and spelling.[3]

As a further gauge of progress toward meeting the compensatory education program's goals, teachers were asked to supply information regarding their instructional program and practices at mid-year. A summarization of teacher responses to selected items is presented below.

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[1] Fredric A. Rivkin, Memorandum on Program Objectives, 15 September 1971, Federal Files, River Rouge School District, Michigan, pp. 1-2.

[2] "The Bugle," River Rouge School District, Mich., November 1971, pp. 5-10.

[3] "The Bugle," River Rouge School District, Mich., February 1972, pp. 1-5.

The number of teachers using pupil performance objectives is quite large, and the means of utilization is varied.

Eleven teachers report that they are using the objectives prepared during the summer workshops. The mathematics objectives seem to be the most frequently ones used. This group of teachers also report that they have developed and are using a check-off system for attainment of objectives. Other teachers are using the exit behaviors for the previous grade as the basis for their initial instructional program.

Another group of twelve teachers indicate that they have prepared their own instructional objectives and check-off system (usually a chart). These objectives have been derived from the following content areas: (1) reading; (2) math; (3) spelling; (4) language and grammar; (5) social studies; and (6) speech.

Still another twelve teachers report that they are using the objectives associated with required texts, readers or commercially prepared supplemental programs and kits. Examples include: SRA Reading Labs and Pilot Libraries, Math Modules, Distar (Reading, Math, Language), Addison-Wesley, and others.

Lastly, nine teachers failed to indicate specific ways in which instructional objectives are being used in their instructional programs.

INDIVIDUALIZED INSTRUCTION

There also appears to be a concerted effort on the part of many teachers to individualize their instructional program in total or in part. Twelve report that they have implemented individualized instruction to varying degrees. One teacher uses individualized instruction in all content areas. Others have individualized certain subjects such as math, reading, English, grammar, and spelling, using commercially marketed products such as SRA kits and Math Modules.

It should be noted here that individualized instruction is defined as a set of pupil performance objectives or academic tasks arranged in a sequential order. All pupils must attain the prescribed objectives, however, their rate of progress depends on how long it takes to achieve the objectives.

While not all project teachers have implemented individualization in a systematic way, nine teachers report that they are working toward this goal. Another sixteen teachers have not reported on efforts being made toward individualization.[1]

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[1] Fredric A. Rivkin, "HumRRO Project--Mid Year Evaluation," 15 March 1972, Federal Files, River Rouge School District, Michigan, pp. 3-5.

The program coordinator provided his assessment of the project in the final section of the report.

> THE P.C.'s EVALUATION
>
> The project is aimed in the desired direction: improved pupil academic performance and achievement. For the most part, teachers have developed and are carrying out programs that are yielding improved pupil performance. The number and quality of academic programs in operation this year surpasses those of 1970-71 by a substantial margin.
>
> Coupled with the increased use of CM for academic achievement is the marked increase in teacher use of objectives. Teachers seem to find this means of teaching more effective than previously used methods. Also, noticeable is the widespread use of the charts and a check-off system for keeping track of pupil progress.
>
> There appears to be a new spirit infusing project teachers: that of experimentation and change. Many teachers like the idea of individualizing instruction, but don't know quite how to do it. Well, something has happened to cause a surprising number of teachers to try organizing their instruction on an individualized basis using specific instructional objectives in a systematic manner.[1]

As the school year progressed, the impetus for individualizing instruction accelerated. Not only were compensatory education teachers individualizing instruction, but other classroom teachers began to move in this direction in their efforts to provide instruction for low-achieving students in their classes. In April 1972, an elementary principal and his sixth and seventh grade teachers decided to begin the individualized Math Modules program for their disadvantaged students for the remainder of the school year and into the 1972-73 year.[2]

Further evidence supporting the change from fixed-paced group instruction to individualization was obtained from examining compensatory education program purchase orders issued during 1971-72. Since Title I and Section 3 operated as one comprehensive program, instructional materials purchases are not differentiated by funding source. Materials purchased which are directly related to individualization included 5 SRA Reading Laboratories, 1 Distar Language Program, 2,150 Student Answer Books for the SRA Reading Laboratories, 7 sets of Math Modules, 1,146 sets of replacement Skill Booklets for Math Modules, and 360 graded comprehension booklets published by Barnell Loft as a supplement to the Reading Laboratories.[1] All of the instructional materials cited above were placed in the classrooms of teachers engaged in compensatory education either as a part of Title I or Section 3.

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[1] Ibid., pp. 6-7.

[2] Wilson Hughes, Memorandum on Math Modules, 28 April 1972, Federal Files, River Rouge School District, Michigan

Other materials were ordered mainly for the use of the Title I remedial reading teachers. These materials consisted of 280 sets of replacement materials for the St. Louis Remedial Reading Program, 74 educational games, 3 sets of literature for leisure and enrichment reading, and 36 consonant and vowel wall charts which were to be used for the summer 1972 program.[2]

As the year progressed, all available evidence indicated that individualization was the predominant instructional methodology within the compensatory education program. Individualized instructional materials were on hand, and teachers were using the materials as they were designed to be used. However, one year's experience with an innovation, such as individualization, does not guarantee its adoption.

Hence, the compensatory education director, local administrative personnel, and HumRRO scientists held discussions with respect to reinforcing and extending the use of individualization within the compensatory education program. As a next step toward the further diffusion and adoption of individualization, HumRRO researchers suggested another summer workshop oriented specifically towards individualized instruction with a lessening of activity in the actual writing of objectives and an increasing of activity in the application of individualized materials.[1]

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[1] Purchase orders authorized by the River Rouge School District during 1971-72.

[2] Ibid.

Before further committing themselves to continued diffusion of individualization, elementary principals asked their teachers to complete a survey form regarding the kind of summer program they desired. Of the ninety-three respondents, seventy-three favored a program focused on individualized instruction.[2] Heeding the teachers preference, local administrators, the compensatory education director, and HumRRO scientists proceeded to plan for another summer workshop in individualization.

As the school year drew to an end, program teachers were asked to provide feedback regarding their use of instructional objectives, efforts at individualizing instruction, and other aspects of the program. The results from the questionnaire are presented below.

> In general, responses of teachers indicated that, while they were far from unanimous with respect to the use of particular objectives, the majority of teachers (65% or more) used objectives rather extensively either as guides to preparing lesson plans or as aids in evaluating student progress.
>
> All but one of the 35 teachers indicated they had attempted to individualize instruction. Nearly all (85%) these teachers used

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[1] Paul G. Whitmore, personal letter, 3 March 1972.

[2] Elementary Principals, Memorandum on Results of Survey of Interest Regarding a Summer In-Service Training Experience, 19 April 1972, Federal Files, River Rouge School District, Michigan

> commercially available teaching materials as well as their own materials in the individualization efforts. Most teachers selected reading and arithmetic as the content areas in which to attempt individualization. Approximately 75% of the teachers felt that they were at least 'fairly successful' in their efforts.[1]

Based on the survey of teachers conducted in April and positive feedback obtained from program teachers, HumRRO was contracted to conduct a workshop in individualizing instruction for teachers during the summer of 1972.

> . . . HumRRO proposes to provide to elementary teachers of the District explicit practice in techniques of individualized instruction. This training will be organized in a fashion that will enhance the ease with which teachers can implement such techniques in their classrooms.
>
> . . . because it is planned to use materials already possessed by the District as teaching vehicles, the purchase of special materials will not be required. Fourth, directly related to this aspect is the fact that, since the workshop will provide training in the use of materials currently possessed by the District, the same materials will be available to the teacher for her use in the subsequent school year. In other words, the teacher will not be asked to practice individualizing instruction by using 'foreign' materials. On the contrary, the materials can be (and are in many instances) used in regular instruction. Fifth, the materials to be used focus directly on reading and mathematics, two content areas most generally accepted as in need of being individualized.
>
> Instructional materials to be used by the students. . . will include the Math Modules published by New Century, and the individualized reading materials published by Science Research Associates, Inc.[2]

In this workshop, forty-three elementary teachers were instructed by some of their colleagues, who served as teacher - consultants and had been trained by HumRRO specifically for this purpose. Daily observations of teacher trainees and timely feedback by the teacher consultants resulted in all teachers being able to use the individualized materials successfully by the end of the summer program.[1] Furthermore, the program objectives below were realized.

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[1] Paul G. Whitmore, William H. Melching, and Edward W. Frederickson, Gain in Student Achievement as a Function of Inservice Teacher Training in Classroom Management Techniques (Alexandria, Va.: Human Resources Research Organization, Technical Report 72-26, [October 1972]), p. 14.

[2] Human Resources Research Organization, "Organization and Conduct of a Workshop in Individualized Instruction for Personnel of the River Rouge School District," (Alexandria, Va., Research Proposal P72-101, [May, 1972]), pp. 1-2.

> "1. Given a four week individualized instructional program in reading, Title I pupils will advance at least one instructional level in the SRA Reading Laboratory kit, (Must achieve 100% mastery.)
> "2. Given a four week individualized instructional program in mathematics, Title I pupils will advance at least one level within a given skill in Math Modules. (Must achieve 100% mastery in order to move ahead.)"[2]

1972-1973 school year

Clearly, after three summer workshops, and two year-long follow-on programs, individualization has taken root and flourished within the compensatory education program. Teachers had been trained. Materials were on hand and were being used. Still additional reinforcement of individualization was needed so that this methodology would become a permanent part of teachers' instructional repertoire and thus become institutionalized.

As a direct result of an earlier event and developments that followed, added impetus to individualization was to be obtained in the subsequent school year. On 25-26 January 1972, the compensatory education director and a Title I reading teacher traveled to HumRRO's western division in Monterey, California for a briefing by HumRRO researchers on a recently developed individualized instructional model, called the APSTRAT Instructional Model. Incorporated in this model were the following principles and generally accepted learning practices:

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[1] Summer Staff, Memorandum on Evaluation of Summer 1972 Individualization Workshop, 28 July 1972, Federal Files, River Rouge School District, Michigan.

[2] "1971-72 Title I Application," p. 19.

"(1) Learning in a functional context;
"(2) A performance orientation;
"(3) Self-paced learning;
"(4) Insistence on mastery at the absolute criterion;
"(5) Objective-based and modularized;
"(6) Peer instruction;
"(7) Quality control; and
"(8) Immediate and detailed feedback."[1]

Upon their return from the briefing, the pair restructured the content of a commercially available phonics program and developed a set of instructional procedures based upon the features of the APSTRAT model. The resultant product, the Phonovisual Peer Instruction Program, was an individualized peer instructional reading program.[2] Implementation of this new program was to take place during the 1972-73 school year.

1972-1973 school year

Following the pattern of the preceeding year, both Title I and Section 3 were designed to operate as a unified program during 1972-73. Title I continued to provide remedial reading instruction and Section 3 funded the individualization efforts that were to occur in the regular classroom.

> Title I students will receive reading instruction at least 3 times per week during the course of the program. Instructional materials will include the SRA Reading Labs and the Phonovisual Program. Instruction will be provided by Title I reading teachers who will use individualized and/or small group instruction. Daily individualized reading instruction will be given by the regular

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[1] Kenneth Weingarten, et al., The APSTRAT Instructional Model (Alexandria, Va.: Human Resources Research Organization, Professional Paper 6-71, [1971]), pp. 2-3.

[2] Fredric A. Rivkin and Martha Dreiman, A Phonovisual Peer Instruction Program (Arlington, Va.: ERIC Document Reproduction Service, CS 001 852, 1974), pp. 1-15.

> classroom teacher with assistance provided by Section 3 teacher aides.
>
> Students will receive math instruction daily in the regular classroom. An individualized math program (Math Modules) will supplement the regular textbook. The classroom teacher, assisted by a Section 3 teacher aide, will provide this instruction.
>
> Title I students will be given daily instruction in Distar Reading, Math and Language. Thirty minutes per day will be devoted to each content area. Instruction will be given by the regular classroom teacher and two Title I teacher aides.
>
> Each participating Title I and Section 3 student will receive Phonovisual instruction for 30 minutes each day during this project. This activity will feature peer instruction, self-paced learning and mastery at the absolute criterion. Instruction will be carried out by the regular classroom teacher.[1]

In May of the preceding year, elementary teachers of disadvantaged students were invited to learn to use the newly developed Phonovisual Peer Instruction Program during the subsequent school year.[2] Immediately after school opened in the fall of 1972, teachers were informed of the following program details:

"1. Teachers will be trained to use the Phonovisual Method of teaching consonants and vowels.
"2. Teachers will be trained to individualize this program in their classroom.
"3. Teachers will implement the program and assist in the evaluation of the program.
"4. Teachers will receive follow-on support during the course of the project."[3]

Twenty-five teachers in the district's four elementary schools used this program during 1972-73 in their classrooms for children with reading deficiencies. To insure that the program was being conducted correctly, the program authors, functioning as coordinators, visited each teacher's classroom bimonthly throughout the year to provide guidance and technical assistance to teachers. Their accumulated observational data were reported in a final evaluation report.

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[1] School District of the City of River Rouge, "1972-73 Application for Compensatory Education Programs (ESEA, Title I and/or Section 3)," River Rouge, Mich., 7 July 1972, pp. 9-4 - 9-10.

[2] Fredric A. Rivkin, Memorandum on the Phonovisual Project, 12 May 1972, Federal Files, River Rouge School District, Michigan.

[3] Fredric A. Rivkin and Martha Dreiman, Memorandum on the Phonovisual Project, 11 September 1972, Federal Files, River Rouge School District, Michigan.

> Classroom observations verified that the teachers and pupils were implementing the PPIP instructional procedures properly. Of particular importance was the fact that the Phonovisual Method was carefully followed and great care was taken by both teachers and pupils to pronounce the specified sounds correctly.
>
> Adherence to the absolute criterion during the quality control stage was also noted. It was quite common to see teachers re-cycle a student who had achieved only 90 to 95% mastery of the material on the quality control tests. During the Peer Instructor-student interactions, many PI remarks to the effect that the student must 'learn it all' were overheard.
>
> By examining class and individual student progress charts, the Program Coordinators noted that students were not bunched together at a given module as is common in conventionally taught classrooms. Instead, students were spread out. This would indicate that learning was, in fact, self-paced and individualized.
>
> During the PI-student interactions, most PI's followed closely the steps used by the teacher in teaching the skill. If it was necessary to re-cycle his student, the PI would then use his creativity to teach the required skill. Internal checks (quality control) prevented PI's from omitting any of the required teachings.[1]

Individualization had, indeed, become the predominant instructional mode within the compensatory education program. Teacher demand led to the following materials being purchased: 2 sets of Math Modules, 7 objective-based individualized mathematics kits that provided cross-referencing to the district's basal mathematics program, 18 sets of replacement material for Distar Reading, Mathematics, and Language, 360 comprehension skill booklets to supplement the SRA Reading Laboratory, 60 reading workbooks, and 100 sets of the Phonovisual Peer

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[1] Fredric A. Rivkin and Martha Dreiman, "An Evaluation of the Phonovisual Peer Instruction Program," River Rouge School District, Mich., October 1973, pp. 2-3. (Mimeographed.)

Instruction Program.[1] With the addition of the Phonovisual Peer Instruction Program and objective-based mathematics kits, the pool of individualized instructional programs was enlarged to enable individual teachers to select that set of materials which best fit their teaching style.

Having completed its three year task of introducing individualization of reading and mathematics as an innovation to the compensatory education program, HumRRO's mission was completed. The innovation had been diffused and adopted as the major instructional approach.

Assessing the condition of the compensatory education program at mid-year, student gain scores of previous years were examined and the accumulated observations of the reading program were reviewed by the compensatory education director and the curriculum coordinator. They concluded and communicated to other school officials that the compensatory education program had the technology and capability to teach almost all children to read and comprehend.[2] At a subsequent meeting on 7 January 1973, a recommendation was made and accepted by the administrative staff to continue compensatory instruction in reading and mathematics for the next school year but now place a higher priority on improving the oral language capabilities of disadvantaged early elementary school children.[3]

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[1] Purchase orders authorized by the River Rouge School District during 1972-73.

[2] Fredric A. Rivkin, Memorandum, 4 January 1973, Federal Files, River Rouge School District, Michigan.

[3] Proceedings of this meeting were obtained from the director's log for 1972-73.

Coming together several months later, a task force, composed of the compensatory education director, curriculum coordinator, elementary school principals, and Title I and Section 3 teachers, explored the feasibility of developing a summer oral language development program for students in kindergarten through the second grade. The group concluded that development of such a program was feasible, indeed, and that much of the needed expertise and competency resided with selected compensatory education teachers; technical assistance from external sources was to be minimal.[1]

Program planning was finalized during 7-8 June at which time the task force met with a nationally recognized educational consultant and author of children's literature for guidance and technical advice with respect to determining and preparing the content for the program. The agenda presented below guided the course of the meetings.

"1. Define concept of oral language development for children aged 3 to 7.
"2. Develop framework for summer language development program.
  "a. Prepare a tentative set of pupil performance objectives for oral language behavior.
  "b. Arrange objectives into a hierarchial structure.
  "c. Develop a means of assessing and recording pupil progress."[2]

In its completed form, the program was described in terms of a set of objectives which also was to give direction to teachers and students.

"1. Given a four week program in oral language development, K-2 Title I pupils will become more capable language users. More specifically:

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[1] Fredric A. Rivkin, Memorandum on Oral Language Development Program Planning, 11 May 1973, Federal Files, River Rouge School District, Michigan.

[2] Fredric A. Rivkin, Memorandum on Tentative Agenda for Oral Language Development Program, 30 May 1973, Federal Files, River Rouge School District, Michigan.

"A. Pupils will be able to create their own sentences following presentation of given sentence patterns.
"B. Pupils will be able to role play after hearing a story.
"C. Pupils will be able to create a comprehensive story.
"D. Pupils will recognize that there are different kinds of language and learn how to use each i.e., home, standard, and literary language."[1]

Guided by the prevailing concept of individualization, a set of procedural steps was prepared and recommended for use by teachers as they attempted to achieve the program objectives described above. These suggested procedures were as follows:

"1. Determine the performance required of the pupils for each objectives.
"2. Derive your instructional activities from the performance requirements above.
"3. Base your instructional content on the objectives of #2.
"4. Select appropriate instructional methods.
"5. Administer your instruction so as to minimize interference with learning and maximize learning principles.
"6. Monitor the progress of your students.
"7. Provide for self-pacing."[2]

Teachers were provided forms during the summer program on which they listed their instructional objectives in a modular grouping from simple to complex learning. This objective continuum served as the basis for teaching and testing activities, and enabled each student to learn to master each part of the instructional program at his own rate. Daily visitations by a peer trainer allowed for monitoring of teacher performance and student progress through the sequence of objectives.

As planned, student learning was defined by objectives, whereas teaching activities were based on a selected set of languge materials, Instant Readers, keyed to the objectives. The Instant Readers are organized into three levels of ten titles each, ranging from relatively simple rhyme and repetition to more sophisticated use of adverbs, adjectives, and a wide range of sentence patterns and are described by their authors as ideal for individualization.[1]

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[1] "1972-73 Compensatory Education Application," p. 13.

[2] Fredric A. Rivkin, Memorandum on Instructional Practices, 20 June 1973, Federal Files, River Rouge School District, Michigan.

The materials described above were supplemented by a reading series, called Sounds of Language, which was used for developing oral language acuity on the part of students. The language series is based on the premises

> . . . that language is learned first in the ear, then in the eye; that sentence sounds are more important than individual word sounds; and that a reading selection should be taught as a total linguistic experience from which children can analyze language and verbalize their understanding of how it works.[2]

An evaluation of this program, prepared by the teacher trainers indicated that the summer program was successful in achieving its objectives. Teachers had prepared objectives, organized them into a hierarchy, allowed for individualization, and had kept records of student progress. Furthermore, not only did teachers use the instructional materials provided, but they requested additional materials for use during the 1973-74 school year. Overall, the program was judged successful.[3]

1973-1974 school year

Compensatory education activities for the 1973-74 school focused again on improved student performance in reading, mathematics, and oral language. The delivery systems used for instruction also remained basically the same as those used in earlier years: remediation and individualization.

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[1] Bill Martin, Jr. and Peggy Brogan, Instant Readers: Teacher's Guide (New York: Holt, Rinehart and Winston, Inc., 1971), pp. 12-30.

[2] Bill Martin, Jr. and Peggy Brogan, Sounds of Language Readers (New York: Holt, Rinehart and Winston, Inc., 1971), pp. 3-4.

[3] Program Coordinators, Report on Summer Oral Language Program, 23 July 1973, Federal Files, River Rouge School District, Michigan.

> Pupils will be diagnosed to determine specific reading skill deficiency. Pupils will then be taught the needed skills via individualized and small group instruction by the Title I reading teacher.
>
> The Title I reading teacher will follow-up the pupil's instructional program by helping the classroom teacher develop an appropriate instructional sequence for the pupil.[1]

The objective-based and highly structured Distar program was continued for students needing a great deal of drill and practice.

> Title I pupils will be given daily instruction in Distar reading, mathematics, and language. Thirty minutes per day will be devoted to each content area.
>
> Instruction will be carried out by the regular classroom teacher in small groups of 5-7 pupils.[2]

Chapter 3 for the 1973-74 was designed to incorporate instructional practices and programs developed under the training and guidance provided by HumRRO.[3]

> Chapter 3 pupils will receive reading instruction 5 days per week during the course of the program.
>
> Reading instructional materials will include SRA Reading Labs, Phonovisual, Houghton Mifflin, and other locally developed individualized instructional programs. Instructional materials for mathematics will include Math Modules and the Harper Row program.
>
> Instruction will be provided by the regular classroom teacher assisted by Chapter 3 teacher aides.
>
> Instructional practices will include the use of:
> (1) objectives;
> (2) mastery modules;
> (3) contingency management;
> (4) peer instruction; and

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[1] School District of the City of River Rouge, "1973-74 Application for Compensatory Education Programs (ESEA Title I and/or Chapter 3)," River Rouge, Mich., 20 July 1973, p. 10-1.

[2] Ibid., pp. 10-2.

[3] In revising the 1974 Michigan State School Aid Act, Section 3 was designated as Chapter 3 of the above act.

(5) individualization[1]

That individualization of instruction was firmly entrenched in the compensatory education program is evident from the application narrative above. Additionally, the kinds of instructional materials purchased attest to the permanence of the methodology's adoption. For the *Phonovisual Peer Instruction Program*, 36 wall charts, 80 sets of duplicating masters, 100 workbooks, and 36 sets of flash cards were ordered. To augment reading instruction one *St. Louis Individualized Reading Program*, three individualized *SRA Reading for Understanding* programs, and three *Distar Language* programs were acquired.[2]

Individualized instructional programs usually consist of consummable materials which must be replaced annually, if students are engaged in the program. Purchases of replacement material included 200 *Student Record Books* for the *SRA Reading Laboratory*, 100 booklets for *Distar Reading*, *Distar Mathematics*, and *Distar Language*, 140 sets of *Skill Booklets* for *Math Modules*, 2[illegible]1 student books for the *Houghton Mifflin Reading Program*, and 504 booklets from the Barnell Loft *Specific Skill Series* which were used as a reading comprehension supplement to individualized kits.[3]

Based on their previous work in the district, HumRRO was asked once again to provide their content and training expertise for improved instruction in oral language development. In response, Project *PLATO-*

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[1] "1973-74 Application," pp. 10-6 - 10-7.

[2] Purchase orders authorized by the River Rouge School District during 1973-74.

[3] Ibid.

Phunctional [sic] Language Training in Oracy Skills was offered as a means of training teachers to teach functional oracy and literacy skills to disadvantaged students handicapped by limited oral expression capabilities. Initially the project was to concentrate on the oracy skills of auding and speaking.[1] After students had required a certain oracy proficiency, then they could be taught the literacy skills of reading and writing.[2]

The format of the project called for the following teacher activities:

"1. Develop and evaluate sets of instructional objectives for improving cognitive and language skills using the oracy processes of auding and speaking.

"2. Plan learning experiences for achieving the instructional objectives."[3]

Having the project designed such that instructional objectives and associated learning experiences constituted the main body of content to be learned maintained consistency with the district's concept of individualization. So, too, were the teaching practices of providing daily language interaction with each student and keeping records of student performance and progress.

Several unanticipated factors hindered successful implementation of the project. Teachers were asked to prepare objectives and teaching activities during the school year either during their daily preparation time, lunch time, or after school, which placed a heavy additional burden on them. Not having a block of time set aside for this activity substantially limited the teacher's production of objectives. Secondly, district personnel lacked the expertise to judge the adequacy of objectives produced and had to seek guidance from the change agent. Thirdly, the change agent sought to provide the necessary guidance via the mail and telephone with the project director acting as the linker. Consequently, a body of instructional content did not materialize. For teachers who were able to prepare an instructional program, there was a lack of explicit teaching procedures to be followed.

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[1] Auding is defined as listening to speech in order to comprehend it.

[2] Human Resources Research Organization, Western Division, "PLATO: Phunctional Language Training in Oracy Skills," Presidio of Monterey, California, n.d., p. 1.

[3] Human Resources Research Organization, "An In-Service Program to Train Teachers to Facilitate the Development of Functional Oracy and Literacy Skills in Pre-School, Kindergarten, 1st and 2nd Grades," Alexandria, Va., Research Proposal P74-11, September 1973, p. 2.

The project director, holding to the basic concept of the project, communicated this state of affairs to HumRRO and requested methodological modifications be considered for the subsequent year.

> Based on my observations of teachers in the PLATO project, I find that students don't have much formal (a conscious effort on the part of teacher) instruction and practice in thinking. This includes:
>
> 1. gathering relevant data
> 2. drawing conclusions based on the data
> 3. relating
> 4. classifying
> 5. sequencing
> 6. ordering
>
> I find, also, that some of our students are not receiving regularly scheduled (daily) opportunities to engage in oral language activities that have a specific desired outcome. Additionally, they are not plugged into a sequentially ordered set of language activities. . . .
>
> Children involved in this program will somehow have to be identified as low language users. . . .
>
> How can the teacher be trained so that the students can achieve the program objectives? For example, if we want a teacher to teach a child to acquire a more extensive oral vocabulary, what must the teacher do? . . .
>
> How do we insure that the teacher will provide 'time on task' for target children?

> After teacher tasks are identified, can we develop the training sequence such that learning is self-paced so that we train teachers the same way we want them to teach children? . . .
>
> We must also develop some means for the teachers to keep records on pupil progress. . . .
>
> Once we have determined what it is we want the students to be able to do, we must look at appropriate instructional materials. . . .[1]

As a follow-up to this letter a meeting was held with HumRRO researchers on 14-15 May 1974 in Monterey, California for the purpose of revising the oracy project for the 1974-75 school year. Shortly, thereafter, the necessary revisions and modifications were made, approved by the district, and HumRRO was authorized to begin work on the second year of the project.[2]

While the preparations for the second year of oracy instruction were being made, a summer reading and oral language program was planned and implemented using the Phonovisual Peer Instruction Program as the core of the instructional program. Reading instruction was to be supplemented with oracy activities patterned after those proposed in the PLATO project.

> The basic program for children will consist of instruction using the Phonovisual Peer Instruction Program. You will also be asked to supplement this instruction by developing and carrying out oral language activities for your students. Program consultants will work closely with you in this endeavor as well as provide technical assistance in implementing the Phonovisual Peer Instruction Program properly. Consultants will also help in the identification and diagnosis of pupils with learning difficulty and in the preparation and implementation of a sequence of learning activities.[3]

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[1] Fredric A. Rivkin, personal letter to Dr. Howard McFann, Dr. William Melching, and Dr. Paul Whitmore, 1 May 1974, Federal Files, River Rouge School District, Michigan.

[2] For a description of the oracy program see pp. 204-208.

[3] Fredric A. Rivkin, Memorandum to 1974 Summer Title I Reading Program Staff, 12 June 1974, Federal Files, River Rouge School District, Michigan, pp. 1-2.

1974-1975 school year

For the 1974-75 school year, both Title I and Chapter 3 emphasized remedial and individualized instruction in reading, mathematics, and oracy using materials and practices influenced by HumRRO's intervention as the means to raise student achievement levels.

> Students will receive specialized reading instruction that supplements that given in the regular classroom. Students diagnosed as needing instruction in phonics will be put on the Phonovisual Peer Instruction Program or a similar program. . . . Instruction will be carried out by Title I remedial reading teachers. Instruction will be individualized and/or in small groups. Whenever possible, peer instruction will be utilized.[1]

Individualized instruction was also provided by the use of Distar Reading, Mathematics, and Language.

> Title I pupils will be given daily instruction in Distar Reading, Mathematics, and Language. Approximately 30 minutes per day will be devoted to this activity. Instruction will be carried out by the regular classroom teacher and two Title I teacher aides.
>
> Chapter 3 pupils will receive reading instruction 5 days per week during the course of the program. Instructional materials will include SRA Reading Labs, Houghton-Miflin Reading Program, Phonovisual Peer Instruction Program, and other individualized programs.
>
> For mathematics, Math Modules and the Harper Rowe individualized math program will be used.
>
> Instruction will be provided by the regular classroom teacher who will be assisted by Chapter 3 teacher aides.
>
> Instructional practices will include the use of (1) objectives, (2) mastery learning, (3) contingency management, (4) peer instruction, and (5) individualization.[2]

Implementation of the program described above was facilitated by the acquisition of three new and improved sets of individualized instructional materials.[3] One of these, the Hoffman Reading Program, was an objective-based K-6 program employing criterion referenced testing, skill level placement, self-pacing, and immediate feedback and positive reinforcement.[1] Also sequentially organized and objective-based, the Wisconsin Design for Reading Skill Development provided an organizational structure and management system for individualization using materials currently available in the district.[2] The individualized St. Louis Program filled the gap in reading readiness instruction. For mathematics, another set of Math Modules was purchased as diffusion of this program continued.

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[1] School District of the City of River Rouge, "1974-75 Application for Compensatory Education Programs (ESEA, Title I and/or Chapter 3)," River Rouge, Mich., 12 July 1974, p. 10-1.

[2] Ibid., pp. 10-2 - 10-8.

[3] Purchase orders authorized by the River Rouge School District during 1974-75.

The remaining expenditures were made for replacement of consummable materials from existing individualized programs. These included 644 booklets from the Barnell Loft Specific Skill Series, 100 sets of student material for the Imperial Reading Program, 5,092 sets of student skill booklets and tests for Math Modules, and 214 Student Record Books for the SRA Reading Laboratory.[3]

Oracy instruction, redesigned by HumRRO, rounded out the year's compensatory education programming. Improvement of student oral language was achieved by development of a set of oracy objectives, construction of a test of student oracy competency keyed to each objective, and preparation of a set of student learning activities for each objective. These objectives and associated learning activities, which formed a common set of student learnings, were collocated in a hierarchy from simple to complex. The specially constructed oracy test was given to all students, and the test items missed determined the content for each student's instructional program.[1] Student progress was governed to a large extent by implementation of the concept of mastery at the absolute criterion and self-pacing.[2] Employing the individualized approach and procedures as designed resulted in an instructional program determined to be effective for increasing student oracy skills.[3]

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[1] Hoffman Reading Systems: Teachers Manual (El Monte, Calif.: Hoffman Electronics Corp., [1971]), pp. 2-7.

[2] Wayne Otto and Eunice Askov, The Wisconsin Design for Reading Skill Development: Rationale and Guidelines (Minneapolis: National Computer Systems, 1974), pp. 1-9.

[3] Purchase orders authorized by the River Rouge School District during 1974-75.

To recapitulate the evolution of compensatory instructional programming, summary chart 1 is presented below.

SUMMARY CHART 1

1965 TO 1970: PROGRAMS BEFORE THE INTERORGANIZATIONAL MODEL

1965-66 Program:

Established a Reading Center for the system to which students were bused. Group instruction at fixed pace in hastily arranged summer program. Teachers provided with remedial materials to support Reading Center prescriptions for selected students. Teacher aides provided to give teachers time for remedial instruction.

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[1] William H. Melching and Paul G. Whitmore, The Effect of Special Oracy Instruction on the Oracy Skills of Primary Level Students (Alexandria, Va.: Human Resources Research Organization, FR-WD(CA)-75-24, [October 1975]), pp. 9-12.

[2] Fredric A. Rivkin, Memorandum on Assorted Items, 16 October 1974, Federal Files, River Rouge School District, Michigan, pp. 1-2.

[3] Melching and Whitmore, Special Oracy Instruction, p. 31.

1966-67 Program:

Individual remedial instruction for critical reading problems in Reading Center. Non-critical problems provided with recommendations for individualized program for classroom teacher. Heavy purchase of materials for Reading Center. Reinforcement of Reading Center with Learning Materials Center at individual schools, which included after school reading program and tutoring. Using group instruction at fixed pace.

1967-68 Program:

Title I program restricted to Reading Center. Other components were eliminated. Added materials purchased for Reading Center. Section 4 program provided K-3 teachers with special materials and aides for improving language development.

1968-69 Program:

Remedial thrust of programs continued, but Section 4 program was limited because of 75 percent cutback in funding. However, some added materials were purchased in this program. Twenty-eight percent more materials were ordered under Title I than in preceeding year.

1969-70 Program:

Title I program continued as remedial. More materials were purchased. Section 3 (formerly Section 4) program was delayed six months. Provided inservice training for teachers and teacher aides and funded addition of such personnel

1971 TO 1975: PROGRAMS AFTER THE INTERORGANIZATIONAL MODEL

1970-71 Program:

Title I continued remedial instruction. More materials were purchased for Reading Center. Section 3 teachers were introduced to individualized instruction and mastery learning and used instructional objectives and contingency management in their classrooms. Placed large order for individualized materials. Teachers used individualized materials in summer program.

1971-72 Program:

Title I and Section 3 funds were combined to form a unified program. Title I, still remedial in nature, provided support to the classroom teacher in the form of individualized materials and a reading teacher assigned to each school building. Section 3 teachers used instructional objectives, mastery learning, and contingency management in their classrooms. Materials were individualized. Fourteen teachers operated individualized programs. Large quantities of individualized materials were ordered. Board of Education adopted individualized reading program for the system. Teachers used individualized materials in summer program.

1972-73 Program:

Title I remained remedial and was coordinated with Section 3. Individualized materials used extensively by classroom teachers. They also used a locally developed peer instructional model for individualization. Several additional sets of individualized materials were purchased. Orders were made for replacement of consummable individualized material. During summer program, emphasis shifted from reading to language development. Specifications for instruction called for use of objectives, mastery learning, and self pacing.

1973-74 Program:

Title I had a combined remedial and individualized thrust. Chapter 3 (formerly Section 3) program stressed individualization using peer instruction program and commercially available individualized materials. Replacement materials for individualized programs were ordered in large quantities. Initiated new oracy program. Continued use of individualized materials in summer program.

1974-75 Program:

Remediation and individualization of instruction were the major focuses of both Title I and Chapter 3. Teachers continued to use individualized materials in their classrooms. Several sets of objective-based individualized materials were purchased. Large numbers of replacement materials were ordered for existing individualized programs. An individualized oracy program was conducted on a pilot basis.

Judges' Results

A panel of three independent judges were asked to determine change in the district's instructional program by examining a set of ten index cards, each of which contained a summary of one year's instructional programming. Following a brief set of instructions, the judges divided the summary cards into two groups: preprogram and postprogram.

The results of the sorting process were clear. Each judge selected the 1965-66 through 1969-70 years as preprogram and the 1970-71 through 1974-75 period as postprogram years.

Summary

In review, the compensatory education program prior to 1970 can be regarded as one oriented primarily toward a remedial approach to instruction; one in which diagnosis, prescription, and instruction were carried out by a few specially trained compensatory education teachers. Such a program format typically required that children be sent from their regular classrooms for special remedial instruction. While the compensatory education program goals included follow-up support for remedial instruction by the regular classroom teacher, this reinforcement of instruction did not occur with enough regularity to claim achievement of the goal. Instruction tended to follow a pattern of group presentations at a fixed pace.

Furthermore, with no clear methodological concept to guide instructional program planning, the early years of compensatory education resulted in new instructional activities being introduced annually along with new kinds of instructional materials; many of the previous year's activities and materials either were eliminated or stored away. The only thread that provided continuity from year to year was that of remediation.

The impact of the application of the interorganizational model by HumRRO on the district's compensatory education program was felt almost immediately beginning in 1970. A concept of individualization of instruction and its associated teaching practices were presented and accepted by the district's staff. Implementation of the concept proceeded systemmatically and consistently year by year.

Human and financial resources were concentrated on installing the innovation. Teaching personnel learned the instructional concept and carried out the procedures prescribed by the concept. Individualized instructional materials were obtained, and teachers acquired proficiency in employing the materials. Administrative personnel acknowledged and supported individualization not only within the compensatory education program, but also throughout the elementary school curriculum.

Once the innovation had been accepted, individualization continued to spread among other teachers. As diffusion was occurring, newer and more effective individualized practices and materials were being added to the compensatory education program's repertoire of capabilities for overcoming some of the deficiencies of the disadvantaged population.

Teacher Behavior

Before the interorganizational model

For teachers participating in compensatory education programs before 1970, no explicit direction and guidance were provided with respect to their performance. It was assumed by program planners and administrators that teachers, given the responsibility for providing compensatory instruction, possessed the understanding, knowledge, and skills to meet stated program objectives. Furthermore, program objectives were framed such that a general administrative process was described as opposed to a set of specific teaching acts.

A portion of the 1967-68 Title I remedial reading component narrative below is illustrative of expected teacher performance during the first five years of compensatory education in the district.

> Individual diagnosis and evaluation of reading problems will be provided for elementary school children referred to the Reading Center by classroom teachers.
>
> Children whose reading problems are deemed critical will be provided individualized remedial reading instruction. This program will be conducted by center personnel.
>
> For children whose reading problems are deemed noncritical, the center staff will provide recommendations for an individualized instructional program to be administered by the classroom teachers who referred them to the center. The center will provide each teacher with appropriate remedial reading instructional materials. Center personnel will follow-up the progress of each child and will be available to the teacher for support services.[1]

Operationally, the remedial reading teachers were expected to perform the following tasks.

> The remedial reading teacher provides assistance to those children having learning problems attributable to reading disabilities. He meets children on a regular basis for the purpose of diagnosing difficulties and providing appropriate remediation. He consults with classroom teachers on effective methods and materials to use with individual students in correlating remedial reading instruction with the regular classroom program. He reports pupil progress to parents, administrators and teachers as needed. He may instruct students individually or in small groups. He will initiate and interpret testing and other diagnostic instruments relevant to reading. He will assist in in-service programs in the school to strengthen the developmental reading program.[2]

While no systematic effort was made to collect data with regard to specific teacher tasks, the accumulated observations from frequent site visitations, diagnostic tests results, and the kinds of instructional materials ordered allowed the director to conclude that the duties described above were, for the most part, being carried out. Additionally, a day by day review of the director's log during these years failed to produce evidence of classroom visitations for the purpose of determining the extent to which classroom teachers attempted to implement suggestions offered by the reading teachers.

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[1] "Title I Application," 1967-68, p. 3.

[2] Fredric A. Rivkin, Memorandum on Recommended Functions of Reading Teachers, 25 September 1967, Federal Files, River Rouge School District, Michigan, p. 2.

Even for teachers working in after school and summer programs, there was no reference made to how they were to provide instruction to students. Instead, it was assumed by program planners that if teachers gained knowledge of how to teach, they would, therefore, be able to teach more effectively, as illustrated in the following training objectives.

> Teachers will be given intensive training in: (1) understanding underprivileged children; (2) understanding how language is developed and used; (3) understanding the physical development of children and utilizing data in actual classroom situations; and (4) diagnosing perceptual disorders.[1]

A clear and explicit set of guidelines with respect to teacher performance was, simply, not possessed by compensatory education program planners or staff. The intervention of an external change agent altered considerably this state of affairs.

After the interorganizational model

By means of a workshop during the summer of 1970, HumRRO staff members sought to influence and change the behavior of a group of twenty-four elementary school classroom teachers who normally instruct students served by the compensatory education program during the regular school year. Part of this workshop was devoted to having teachers learn how to establish and maintain a positively reinforcing, non-aversive learning environment by employing contingency management techniques in their classrooms. By definition, a positively reinforcing, non-aversive learning environment is one in which there is a high degree of student-teacher interaction. In this interaction the teacher: (1) provides frequent response opportunities, (2) give frequent approving behaviors, and (3) provides infrequent disapproving behaviors to the student.[1]

---

[1] Application for State Aid for Underprivileged Children, 1967, p. 4.

The change that occurred in the behavior of the teacher was described by HumRRO scientists in their final report.

> During the two-week period when teacher observations were recorded, data were obtained for three teacher behaviors: response opportunities, approving behaviors, and disapproving behaviors. The mean frequencies for each category are presented in Table 3 and graphed in Figure 3.[2] A 20-minute observation period was scheduled during each hour of instruction, but due to the types of lessons presented at various times, data collection was not possible for parts or all of some sessions. For example, some teachers required seat work during part or all of their hour of instruction, so teacher-student interaction was not possible at that time.
>
> Thirteen of the 22 teachers for whom data are reported increased their rate of providing response opportunities by at least 50%. The remaining nine teachers initially used a high rate of teacher-student interaction, which they maintained during the observation period. Thirteen teachers had an increasing rate of providing approving behaviors. One teacher had a slight decrease in her rate of approving behaviors, but this was accompanied by a marked decrease in disapproving behaviors. The remaining teachers maintained a relatively high level of approving behaviors.
>
> The changes in disapproving were quite noticeable in many teachers who routinely used punishment. A total of 15 teachers showed a decrease in their rates of disapproving behaviors. Two teachers had increases in disapproving behaviors; however, they also showed an increase in approving behavior.
>
> In order to statistically evaluate the changes in teacher behaviors, analysis of variance procedures were used. Because missing data decrease the efficiency of the statistical procedures, a reduced amount of data was subjected to statistical evaluation. The analyses for all three behaviors are summarized in Table 4.[3] For all three behaviors, there was a significant ($p < .001$) change in behavior, in the desired directions, over the course of the observations.
>
> It can be concluded from the evaluation of the observation data that the behavior of the teachers as a group change significantly. They learned to present more response opportunities to the students.

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[1] For a definition of these behaviors see p. 40.

[2] Table 3 in the quoted material is table 1 in this text, and figure 3 in the quoted material is figure 3 in this text.

[3] Table 4 in the quoted material is table 2 in this text.

TABLE 1

FREQUENCY OF TEACHER BEHAVIORS EXPRESSED AS MEANS FOR 20-MINUTE PERIODS, SUMMER, 1970

MEASURE	1	2	3	4	5	6	7	8	9	10
Response Opportunities										
Mean	35.7	36.8	39.9	48.2	48.4	71.5	56.4	61.0	56.7	51.3
Standard deviation . . .	15.7	15.9	24.3	23.6	23.6	29.3	22.6	23.9	19.6	15.0
Number	13	18	20	21	22	22	22	21	21	22
Approving Behaviors										
Mean	35.4	33.6	35.0	36.7	45.2	47.8	41.2	48.3	42.7	42.6
Standard deviation	23.2	24.3	28.8	31.7	23.2	17.8	13.7	30.3	28.6	25.3
Number	14	18	20	21	22	22	22	21	21	22
Disapproving Behaviors										
Mean	5.2	7.2	6.9	7.9	4.8	4.4	4.1	2.7	4.2	2.6
Standard deviation . . .	5.1	7.6	7.4	8.2	3.9	4.8	5.3	3.6	6.9	3.1
Number	13	14	15	15	17	17	17	16	17	17

SOURCE: William H. Melching, Edward W. Frederickson, and Paul G. Whitmore, Introducing Innovation in Instruction: In-Service Teacher Workshops in Classroom Management (Alexandria, Va.: Human Resources Research Organization, Technical Report 70-104, 1970): 20, Table 3.

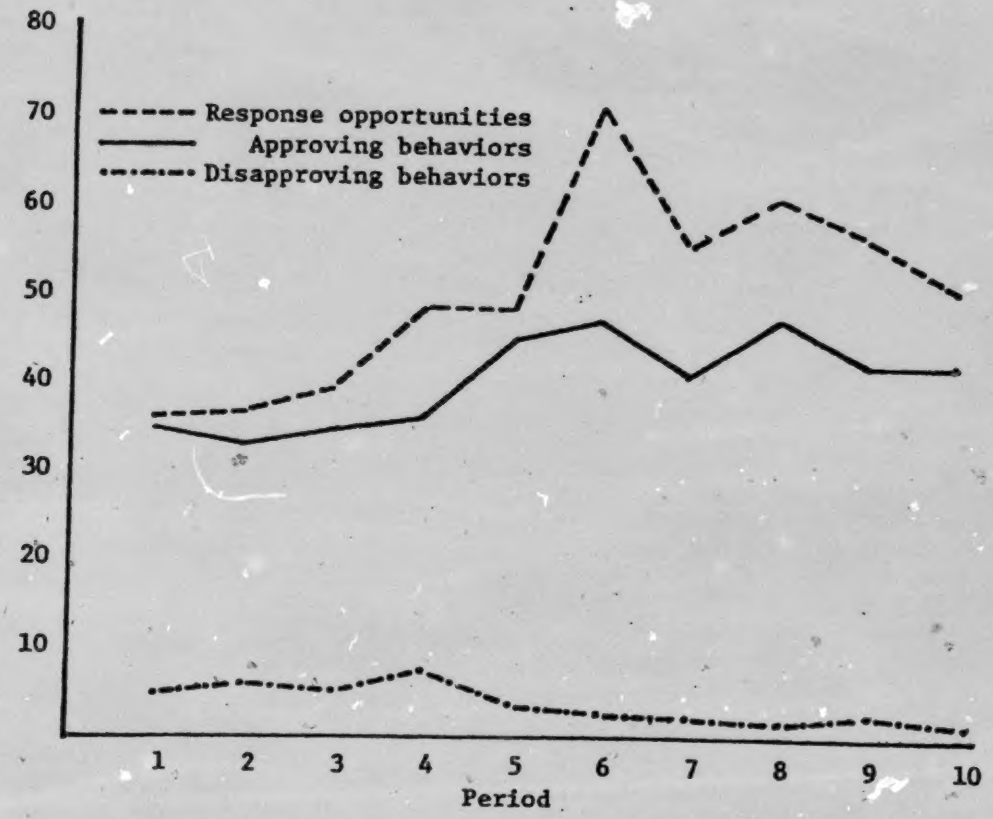

Fig. 3 Frequency of Teacher Behaviors

SOURCE: William H. Melching, Edward W. Frederickson, and Paul G. Whitmore, Introducing Innovation in Instruction: In-Service Teacher Workshops in Classroom Management (Alexandria, Va.: Human Resources Research Organization, Technical Report 70-104, 1970): 21, Figure 3.

TABLE 2

ANALYSIS OF VARIANCE SUMMARIES

Source of Variance	df	MS	F
Response Opportunities			
Sessions (A)	7	2424	8.1
Teachers (S)	21	1980	6.6
A x S	147	297	
Total	175		
Approving Behaviors			
Sessions (A)	7	1247	4.6
Teachers (S)	21	2895	10.6
A x S	147	. . .	
Total	175		
Disapproving Behaviors			
Sessions (A)	7	72	4.0
Teachers (S)	16	134	7.4
A x S	112	18	
Total	135		

SOURCE: William H. Melching, Edward W. Frederickson, and Paul G. Whitmore, Introducing Innovation in Instruction: In-Service Teacher Workshops in Classroom Management (Alexandria, Va.: Human Resources Research Organization, Technical Report 70-104, 1970): 21, Table 4.

They learned to use more positive reinforcing statements and gestures, along with fewer aversive or punishing behaviors.[1]

In order to sustain the change in teacher behavior for the 1970-71 school year, summer workshop teachers participated in a year-long follow-up program during which they were observed regularly in their classrooms. Response opportunities, approving behaviors and disapproving behaviors were recorded and tabulated as they were done during the summer. Table 3 shows the results of observations from both the summer and beginning of the 1970-71 school year.

TABLE 3

TEACHER BEHAVIOR OBSERVED DURING THE 1970 SUMMER WORKSHOP AND BEGINNING OF THE 1970-71 SCHOOL YEAR

TEACHER BEHAVIORS	Summer 1970		School Year
	First 3 Days	Last 3 Days	3 Days
Response Opportunities .	37.5	59.4	64
Approving Behaviors . .	34.6	44.5	48
Disapproving Behaviors .	6.5	3.2	4.8

SOURCE: Edward W. Frederickson, Paul G. Whitmore, and William H. Melching, Innovation in Classroom Management: An Evaluation (Alexandria, Va.: Human Resources Research Organization, Consulting Report, September 1971): 9 Table 1.

> It was concluded from the evaluation of the observation data collected during the workshop period that the behavior of the teachers as a group changed significantly and was maintained at the beginning of the school year. They increased the frequency

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[1] Melching, Frederickson, and Whitmore, Introducing Innovation in Instruction, p. 19.

> of response opportunities which they provided the students; they increased the use of positive reinforcing statements and gestures made in response to appropriate student behaviors, and they decreased their use of aversive or punishing statements and acts.[1]

A workshop, similar to the one presented in the summer of 1970, was offered to another group of twenty-four elementary teachers during the succeeding summer. This program differed from the previous program in that there was less didactic teaching to the students as a total group and more emphasis on having teachers learn to use individualized instructional material. Since the material tended to provide response opportunities and varying degrees of reinforcement for the student, teachers were encouraged to supplement the reinforcement built into the instructional materials by verbally praising students for success in assigned tasks and eliminating disapproving behaviors. As a result of this less structured approach, no useful observational data were produced during the workshop.

Trained teachers from the summer, 1970 workshop joined the newly trained group of teachers in the 1971-72 school year's compensatory education program follow-up. As in the year before, teachers were observed at least five times by the project coordinator who recorded the frequency of the three teaching behaviors described above.

In order to compare the performance of the teachers as a group between 1970-71 and 1971-72, the data presented in table 3 were converted from a mean frequency of raw behaviors to a rate per minute by dividing each mean by twenty minutes, since this was the time spent in recording each observation. The data for 1971-72 had already been gathered on a rate per minute basis and, therefore, needed no conversion. For 1970-71, twenty-four teachers are represented, and thirty-six teachers make up the 1971-72 group.

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[1] Edward W. Frederickson, Paul G. Whitmore, and William H. Melching, Innovation in Classroom Management: An Evaluation (Alexandria, Va.: Human Resources Research Organization, Consulting Report, [September 1971]), p. 8.

Table 4 shows that the teachers as a group in the second year not only sustained the desired teaching acts but demonstrated improvement over the first year. Most importantly, the rate of disapproving behaviors was reduced to the point where, for all practical purposes, their extinction had occurred.

TABLE 4

RATE PER MINUTE OF TEACHER BEHAVIORS DURING
1970-71 AND 1971-72 SCHOOL YEARS

	1970-71	1971 - 72					
TEACHER BEHAVIORS	School Year 3 Days	Day	Day	Day	Day	Day	TOTAL
Response Opportunities	3.2	3.5	4.0	4.4	3.8	5.4	4.2
Approving Behaviors	2.4	2.5	2.8	3.1	2.8	4.0	3.0
Disapproving Behaviors	0.2	0.1	0.1	0.1	0.1	0.0	0.1

Having achieved the first step toward improved teacher performance, compensatory education training programs sought to enable teachers to acquire the mechanics associated with using commercially and locally developed individualized instructional materials during the next two school years.[1]

During the 1974-75 school year, four primary level teachers, each having received training in a HumRRO workshop, participated in a pilot program to improve the oracy capacities of language-limited students.[2] In order to elicit responses from language deficient students, the teachers were asked to create a positively reinforcing learning environment by employing frequent response opportunities and approving behaviors while keeping disapproving behaviors to a minimum.

Following the observational procedures used earlier, the program coordinator collected behavioral data on the teachers performance during the year. Based on four observations, spaced equally apart, the four teachers averaged a rate of 3.4 response opportunities per minute, 3.2 approving behaviors per minute, and 0.3 disapproving behaviors. Compared with the data presented in Table 4, the desired teacher behaviors remained basically constant. There was a slight reduction in response opportunities and a small increase in both approving behaviors and disapproving behaviors.

In reviewing the impact of the external change agent's model on teacher performance, significant improvement was achieved. Not only did teacher performance change in the desired direction, but that change was sustained over time. Even after a three year interruption in emphasizing positive teacher acts, teachers still were able to establish and maintain a high degree of positive teacher-student interaction.

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[1] For a detailed discussion of the mechanics associated with these workshops see pp. 137-139.

[2] For a description of the oracy program see pp. 204-208.

Inservice Teacher Training

Before the interorganizational model

1965-1966 school year

Inservice teacher training has been an integral part of the River Rouge compensatory education program since 1965. Over the years described in this study, the major goal of inservice training has been to provide teachers with the knowledge and skills needed to teach disadvantaged students. Various approaches were tried including lecture methods, attendance at conferences, university coursework, and workshops led by public school, university-based, and non-university-based instructors. The following text presents inservice goals and activities year by year beginning with the 1965-66 school year.

Inservice training for the 1965-66 school year was planned to be a comprehensive program to mobilize all of the human resources of the school district to meet the needs of disadvantaged students.

> The River Rouge public schools propose to meet the major needs of educationally deprived children in the following manner:
> In-Service Education
> 1. Provide a continuing series of seminars to deepen professional insights and broaden understanding of the educationally disadvantaged child.
> 2. Visitation to school districts experimenting with promising educational programs for the educationally deprived child.
> 3. Demonstrations on the effective utilization of instructional material prepared for the educationally deprived.
> 4. Expansion of the professional reference library with respect to books and periodicals on the culturally deprived child.
> 5. Nationally recognized authorities in the fields of culturally deprived, remedial reading, mathematics, social

studies, communication skills, and science will be invited to address the faculty.

6. The Wayne County Intermediate School District and several publishing firms will provide in-service course content and personnel.
7. In-Service Education will be focused on teachers who are teaching educationally and culturally disadvantaged. Other interested teachers within the system can also avail themselves of this program.[1]

A master plan for the school year was prepared to accomplish inservice goals, and it was communicated in the district's teaching staff.

> Once a month a nationally recognized expert in the field of the culturally and educationally disadvantaged child will be invited to speak to the total school faculty. School will be dismissed a half day, so that teachers might attend this lecture. Following the speakers presentation, there will be small group meetings dealing with the areas of remedial reading, remedial math, remedial science, remedial language arts, etc. Teachers will choose one of these groups to attend. Resource people from local universities and Wayne County Intermediate School District, will be invited to come in to chair these individual meetings.
>
> A series of weekly Saturday workshops will be instituted. Arrangements will be made with a local university to secure personnel to staff these workshops. The workshop would run from 9 to 12. Preference will be given to those teachers who will be teaching in the summer Remedial Program, next in line of preference will be those teachers who are teaching mainly classes of educationally deprived children.[2]

In the main, the plan was carried out as stated, except there was only one system-wide staff meeting instead of three. The director of a highly successful project for disadvantaged youth at an eastern university addressed the district's teachers on the impact of cultural and educational deprivation on the physical, emotional, and academic development of the school age population.[3]

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[1] "Title I Application," February 1966, p. 6.

[2] Fredric A. Rivkin, Memorandum to Faculty Systemwide, 21 April 1966, Federal Files, River Rouge School District, Michigan, p. 1.

[3] Compensatory education director's log for 29 April 1966.

As a follow-up to this meeting a series of eight Saturday morning workshops, beginning 7 May, 1966, were scheduled for teachers planning to teach in a scheduled summer reading program for disadvantaged students. Six workshops focused on teaching reading and included topics such as (1) reading problems of the disadvantaged learner, (2) how children learn to read, (3) how to teach decoding and comprehension skills, (4) testing and diagnosis, (5) instructional materials, and (6) classroom organization. Evaluation techniques for teacher use and student self-concept were presented at the remaining two workshops.[1]

Nationally recognized experts from several eastern universities were hired to conduct the Saturday workshops. Typically, the workshop speakers followed a lecture and discussion method in which information was presented to teachers followed by a disucssion of the topic's implications for teaching. "The . . . time will be devoted to a presentation by Professor L. Hopp on self-concept."[2]

1966-1967 school year

The inservice training proposed in the 1966-67 compensatory education program emphasized improvement in teaching reading using the expertise and knowledge of Title I reading teachers and supplemented by experts outside the school district.

> For elementary school teachers, the Reading Center staff will provide a program of in-service workshops on comprehensive individualized reading instruction. Emphasis of this in-service program will be on use of Center services and materials. This program will be in addition to the in-service program on the philosophy and

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[1] Fredric A. Rivkin, Memorandum to Inservice Workshop Participants, 2 April 1966, Federal Files, River Rouge School District, Michigan.

[2] Fredric A. Rivkin, Memorandum to Summer Reading Staff, 7 July 1966, Federal Files, River Rouge School District, Michigan.

> technique of reading instruction (see below) to be conducted by nationally recognized experts in reading instruction.[1]

During the course of the regular school year, groups of classroom teachers attended Reading Center orientation meetings conducted by Title I reading teachers at which times they were informed of the Center's services and materials.[2]

The major inservice training centered around a summer reading program for students. Prior to the arrival of students, teachers participated in a special workshop designed to improve their capabilities to teach reading.

> In-service training will be provided for 75 teachers from the public and non-public schools. This program will include the 25 teachers who were trained for work in the summer reading program as well as 50 new teachers. The objective is to make 25 teachers into expert reading teachers at the same time that we are inaugurating 50 'untrained' teachers into the same kind of program.
> The major emphasis in the program will be on the philosophy and techniques of reading education, including:
> (a) selection of appropriate individualized diagnostic test batteries and their utilization for planning and evaluation of individualized instructional programs;
> (b) diagnosis of reading problems;
> (c) selection of appropriate educational materials;
> (d) individualizing instructional programs;
> (e) evaluation; and
> (f) using on going evaluation to revise on going flexible individualized programs.
> Additional time will be spent on means of developing critical thinking and adequate self-concepts in children using reading instruction as the vehicle.[3]

A highly regarded reading consultant from a neighboring school district presented a three day workshop for summer school teachers on the content described above.[4] The consultant's presentation followed the same format used in the 1965-66 workshops: lecture and discussion.[1]

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[1] "Title I Application," August 1966, p. 3.

[2] Compensatory education director's log for 1966-67.

[3] "Title I Application," August 1966, p. 14.

[4] Compensatory education director's log of 19-21 June 1967.

In the midst of the summer program two University of Maryland staff members spoke to the teachers on the disadvantaged learner.[2] "The theme of these meetings is teaching the educationally and culturally deprived child. Meetings will deal with understanding the educationally and culturally deprived child, instructional methods and techniques, and evaluation."[3]

After two years of inservice training, a pattern of operation emerged in which general topics (e.g., reading and educational deprivation), were presented to teachers in a lecture type setting. Meetings ranged from one to three hours during which time the speakers made their presentations, encouraged teacher reaction and discussion, made recommendations, and then left. Each inservice meeting was regarded as an independent activity with no follow-up provided to teachers. Furthermore, the words of experts were regarded as the most effective way of helping teachers do a better job.

1967-1968 school year

During the 1967-68 school year, inservice training activities were included as a part of the school district's Title I and Section 4 programs. The Title I inservice component was a duplicate of the 1966-67 program.[4] Concentrating on language development, the Section 4 program sought to improve classroom teachers' competencies in this area by giving ". . . intensive training in: (1) understanding underprivileged children, (2) understanding how language is developed and used, (3) understanding the physical development of children and utilizing data in actual classroom situations, (4) diagnosing perceptual disorders."[1]

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[1] Ibid.

[2] Compensatory education director's log of 10, 12 July 1967.

[3] Fredric A. Rivkin, Memorandum to Summer Reading Teachers, 6 July 1967, Federal Files, River Rouge School District, Michigan.

[4] For a description of the 1966-67 inservice component see pp. 111-112.

A comprehensive reading training program was proposed as the major inservice activity for the first half of the school year. Following a keynote address on the nature of the underprivileged child by a noted local psychologist to a system-wide meeting of teachers, the following schedule of meetings was prepared.

"TEACHING BASIC SKILLS.
"Demonstration and use of Material.
"September 18th. Morning - Released time.
"INTRODUCTION TO BASIC READING SKILLS.
"September 23rd. Saturday morning 9:00 to 12:00
"PRE-READING SKILLS.
"September 30th. Saturday morning 9:00 to 12:00
"AUDITORY, VISUAL AND SOUND DISCRIMINATION.
"October 14th. Saturday morning 9:00 to 12:00
"BEGINNING READING INSTRUCTION.
"October 21st. Saturday morning 9:00 to 12:00
"WORD ATTACK SKILLS.
"November 4th. Saturday morning 9:00 to 12:00
"VOCABULARY, WORD MEANING.
"November 11th. Saturday 9:00 to 12:00
"COMPREHENSION.
"December 2nd. Saturday 9:00 to 12:00
"ANALYZING & TESTING READING PROBLEMS.
"December 9th. Saturday 9:00 to 12:00
"BASIC IDEAS.
"December 11th. 9:00 to 12:00"[2]

Staff members from nearby universities and reading specialists from neighboring school districts were invited to give presentations on the various topics. The format followed by all speakers at their meetings was the same as that used in the preceeding two years: lecture, demonstration, and discussion.[1]

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[1] "State Aid Program," 1967, p. 4.

[2] Ann Thompson, Memorandum on Inservice Training for Teachers, Fall, 1967, Federal Files, River Rouge School District, Michigan p. 2.

Several months later, a professor at the University of Illinois spoke to teachers about language development in young children.[2] The following month the director of psychological services at an intermediate school district ". . . discussed Perceptual Learning with teachers. . . ."[3] The meeting's agenda is presented below as an illustration of a typical inservice training session.

"General Theme: Promoting Communication Skills
"I. Perception - Language - Thought
    "A. General Overview of Perception
        "1. The Perceptual Process
            "a. Sensory-Motor
            "b. The Conceptual Process
    "B. The Use of Symbols
        "1. Sign Learning
        "2. Symbolic Learning
    "C. The Role of the Teacher
        "1. Developing Planned Sensory Experiences
        "2. Activities & Techniques
    "D. The Role of the Aide
        "1. Non-Instructional Services
        "2. Semi-Instructional
"II. Summary
    "A. What We Have
    "B. Where We Go
    "C. How We Accomplish Our Goals"[4]

Held during a one-and-one-half hour meeting after school, there was little time after the consultant's remarks for teachers to participate actively in the program.[1]

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[1] Compensatory education director's log of 1967-68.

[2] Compensatory education director's log of 7 February 1968.

[3] A. Kent Martin, Memorandum to Section 4 Program Teachers, 3 April 1968, Federal Files, River Rouge School District, Michigan.

[4] River Rouge (Michigan) School District, Notice to Teachers, [1968]. (Mimeographed.)

Another example of the format followed in meetings of longer duration is shown by the following notice sent to participants.

"WHAT'S HAPPENING
"May 25, 1968
"8:30 - 9:00 Coffee
"9:00 - 10:30 Dr. J. Richard Suchman
"LANGUAGE DEVELOPMENT THRU INQUIRY
"10:30 - 11:15 Group Sessions
"11:15 - 11:30 Coffee
"11:30 - 12:00 Questions and Answers"[2]

In addition to holding inservice meetings within the school district, teachers were encouraged to attend professional meetings, lectures, and workshops outside the school district for which they received financial compensation.

"PLEASE ANNOUNCE TO YOUR STAFF.
"Invitational meeting Thursday, May 9th from 3:30 to 5:30 P.M.
"PLACE: Auditorium - Stout Junior High School
18500 Oakwood Blvd., Dearborn
"SPEAKER: Dr. John Harrington, Principal, School
for Language and Hearing Impaired Children
(P.S. No. 158, New York City)
"TOPIC: Programs for children with learning disabilities"[3]

As in previous years, a summer reading program was offered to disadvantaged students needing remedial instruction. Classroom teachers, volunteering for this program, were given special reading training in a five day workshop immediately preceeding the opening of the summer school program.

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[1] Compensatory education director's log of 19 March 1968.

[2] River Rouge (Michigan) School District, Notice to Teachers, 25 May 1968. (Mimeographed.)

[3] Fredric A. Rivkin, Memorandum to Building Principals and Reading Center, 6 May 1968, Federal Files, River Rouge School District, Michigan.

> Beginning Wednesday, June 26th through Monday, July 1st, the inservice and orientation sessions will be held for teachers in the summer reading program. These sessions will be held in the Reading Center from 9:00 A.M. until 12:00 Noon, and from 1:00 P.M. until 3:00 P.M. Mrs. Ann Thompson will direct the program and Mrs. Dorothy Ward and Mrs. Audrey Pollard [all Title I reading teachers] will serve as resource persons. We will have visiting reading consultants meeting with the group periodically.[1]

The summer inservice program differed from earlier programs in that local school district personnel conducted teacher training in reading instruction instead of outside consultants. The workshop format used in other years was followed in presenting the workshop content.

1968-1969 school year

A reduction in compensatory education funds for 1968-69 resulted in a curtailment of inservice activities. "No formal in-service training is provided under Title I. Most teacher re-education will occur during reading specialist, psychologist, and speech therapist conversations about individual cases with the classroom teacher."[2] The Section 4 program sought to provide inservice training commensurate with limited dollars.

> Training will be devoted to effective means of establishing amicable working relationships between teachers and teacher aides. For teachers demonstrating program oriented educational goals, a program of humanistic education will be provided. Training will continue in the area of language development for both teachers and teacher aides but on a severely reduced scale.[3]

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[1] A. Kent Martin, Memorandum to Summer Reading Teachers, 17 June 1968, Federal Files, River Rouge School District, Michigan.

[2] School District of the City of River Rouge, "Application for Grant to Meet the Special Educational Needs of Educationally Deprived Children under Title I of Public Law 89-10 as amended," River Rouge, Mich., 9 July 1968, p. 4.

[3] School District of the City of River Rouge, "Application for State Aid for Programs for Underprivileged Children," River Rouge, Mich., September 1968, p. 5.

Inservice consisted of two activities, one of which was an address on the problems of the disadvantaged population given by a university professor who was also a member of the Detroit Common Council to a system-wide faculty meeting.[1] The other activity provided tutition reimbursement to three Title I reading teachers who had enrolled in special reading courses sponsored by a local university.[2]

In retrospect, inservice training activities during the years since 1965 have followed the same format. Topics presented to teachers were intended to stimulate teachers and make them aware and sensitive to the needs of the disadvantaged student. Furthermore, inservice topics tended to be general in content and resulted in the workshop speaker being active while the teachers passively absorbed the information presented. Finally, there was some attempt at systematically presenting reading workshops, but these, too, were presented in an isolated and fragmented fashion.

1969-1970 school year

The inservice training plans at the beginning of the 1969-70 school year paralleled those of the 1968-69 year.

> No formal in-service teacher or paraprofessional training will be supported by Title I funds. The school district plans to prepare an in-service training program for teachers and paraprofessionals and request assistance from Section 3 of the State of Michigan School Aid Act (program for underprivileged children).
>
> It should be noted, however, that informal teacher re-education will take place as Title I specialists cooperatively plan with classroom teachers the appropriate teaching methods for project

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[1] Mel Ravitz, "Societal Trends and the State of Education," speech given at Greenfield Village, Dearborn, Michigan, 14 March 1969. (Typewritten.)

[2] Reimbursement purchase orders authorized by the River Rouge School District on 21 March 1969 and 16 April 1969.

children.[1]

The Section 3 program continued to stress language development training for teachers. The inservice goal was "To improve the teacher's understanding of pupil learning problems and to develop improved teacher competency in teaching language skills."[2]

Because of a six month delay in starting the inservice program, it was modified quite substantially. Instead of training teachers during the last half of the school year, teacher aides assigned to teachers in the Section 3 program were offered a series of workshops related to tasks they were required to perform as a part of their everyday classroom activities. A summer workshop for teachers was also included in the inservice plan.[3]

Between February and April, five workshops were conducted for teacher-teacher aide teams. The topics and dates of the workshops are as follows.

"1. ROOM DECORATION, February 28 and March 7
    "a. Bulletin boards, creative displays, fundamentals of design
"2. AUDIO-VISUAL EQUIPMENT, March 28
    "a. How to operate audio-visual and duplicator equipment
    "b. Preparation of ditto masters and stencils
"3. THE PROCESS OF READING, April 11
    "a. How does a child learn how to read
    "b. Reading games
    "c. Techniques of reinforcing handwriting skills.
"4. PRACTICAL ARITHMETIC, April 18
    "a. Basic concepts of arithmetic
    "b. Arithmetic games

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[1] "Title I Program," 1969, p. 7.

[2] Section 3 Program," 1969, p. 8.

[3] Addendum to 1969-70 Section 3 Application, 14 February 1970.

"c. Techniques of reinforcing arithmetic skills."[1]

Teachers in the district, possessing the needed skills, were hired to conduct the workshops on successive three hour Saturday morning sessions. The workshop instructors were given a copy of the above memorandum as a guide for the preparation of their instruction. Accompanying the memorandum was a note of instructions. "Attached is the note sent to the teacher aides about the Audio-visual Workshop on Saturday, March 28, 1970. I think it has all the stuff you need to know."[2]

Clearly, the organization and conduct of inservice training for teacher aides followed the same general pattern used for training teachers. However, there were several important differences in the operation of the workshops on room decoration and audio-visual equipment. The tasks to be learned by the teacher aides were job specific; they related directly to duties teacher aides performed in the classroom. Furthermore, learning occurred in a functional context and was performance oriented; what the teacher aides learned, they put to use immediately. In the past at the conclusion of a workshop, there was no assurance that participants would use the knowledge or skill provided to them.

At this time HumRRO received a contract to develop and conduct a workshop for teachers that would enable them to improve the achievement of disadvantaged elementary school students. In preparing the workshop, a HumRRO staff member visited teachers in each of the district's four elementary schools to ascertain the kinds of problems they encountered with students in their daily teaching routine. Nearly all teachers cited student behavior as their major problem.[1]

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[1] Fredric A. Rivkin, Memorandum to Teacher Aides on Section 3 In-Service Training, 18 February 1970, Federal Files, River Rouge School District, Michigan.

[2] Fredric A. Rivkin, Memorandum to Jerry Bresnahan, 24 March 1970 Federal Files, River Rouge School District, Michigan.

Based on teacher responses, HumRRO specified the problems to be handled.

"(1) Identify potential changes in the instructional processes used in the elementary classrooms that would lead to increased student achievement.
"(2) Translate the changes in the instructional processes into terms of changes desired in the classroom behaviors of the teachers.
"(3) Develop and apply effective techniques for changing the classroom behavior of teachers.
"(4) Develop and apply techniques for sustaining the changes in the classroom behavior of the teachers."[2]

An analysis of the classroom problems by HumRRO suggested certain changes in instructional processes in order to improve student achievement and motivation. The changes were:

"(1) Introducing behavioral (e.g., performance) objectives as a basis for teaching and testing activities.
"(2) Requiring all students to learn to master each part of the instructional program.
"(3) Applying contingency management techniques, emphasizing reinforcement and reward, for controlling student behavior in the classroom."[3]

Toward these ends, three workshops were developed for teachers: (1) Development and use of instructional objectives, (2) Implementation of the concepts of learning modules and mastery tests, and (3) Employment of contingency management techniques in the classroom. Because of their unique nature, the several workshop objectives are presented in their entirety.

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[1] Compensatory education director's log of 14 April 1970.

[2] Melching, Frederickson, and Whitmore, Introducing Innovation in Instruction, p. 3.

[3] Ibid., p. 4.

INSTRUCTIONAL OBJECTIVES WORKSHOP

A set of goals stated in terms of expected teacher behavior was established for the workshop. These statements illustrate the kinds of skills the teachers were expected to acquire for expressing their instructional goals for their own students in performance terms. The workshop goals were:

> Given a set of learning goals, identify those that are stated in behavioral terms and those that are stated in non-behavioral terms.
>
> Given a set of learning goals, identify those in which conditions of performance are stated and those in which conditions of performance are omitted.
>
> Given a set of learning goals, identify those in which standards of performance are stated and those in which no standards are stated.
>
> Given a set of objectives in which the three structural components (action, conditions, and standards) are present, judge the precision (i.e., clarity, communicability, or explicitness) of each component. Judgments should be made as either 'acceptable' or 'unacceptable.'
>
> Given an instructional topic or body of content conventionally taught in grades one, two, or three, write a set of behavioral objectives that will effectively communicate the instructor's intent with respect to student learning. As a minimum, each objective should contain (a) a statement of the desired student action, (b) the important conditions under which the action must occur, and (c) the minimum level of acceptable performance.
>
> Given a set of behavioral objectives appropriate for grades one, two, or three, prepare at least one criterion test item for each objective. To be acceptable, each test item must require behavior that is relevant to the behavior specified in the objective.[1]

The nature of the instruction and the activities for this workshop are shown in appendix A.

MASTERY LEARNING WORKSHOP

The goals for the teachers for this workshop were stated as follows:

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[1] Ibid., p. 6.

Given a body of instructional content or material in an area in which the teacher has a demonstrated teaching competence, divide the content into modules or learning units. The basis for the division of material should be natural or logical, and the amount of material may vary from unit to unit. Ideally, each week of instruction should contain approximately two modules of instructional material.

Given a body of instructional material that has been divided into modules or units, convert the content of each module into statements of behavioral objectives. Each objective should be worded so that the three structural components (action, condition, and standard) are stated explicitly and each objective should be designated as either terminal or enabling, if possible.

Given a list of objectives for a set of instructional modules, construct a set of test items (to be grouped into mastery tests) that will assess how effectively the student has achieved each objective in each module. To be acceptable, each test item must require behavior that is relevant to the behavior specified in the associated objective. Also, so that students may be retested if their initial performance on a mastery test is not satisfactory, alternate test items must be constructed for each objective.

Using the objectives and modules previously prepared for a body of content, outline the necessary learning materials and set of learning experiences that are intended to enable students to demonstrate mastery of the content, i.e., to perform successfully on the mastery test.[1]

The nature of the instruction and the activities for this workshop are shown in appendix B.

CONTINGENCY MANAGEMENT WORKSHOP

A good indication of the range of skills to be acquired by the teachers in the contingency management workshop is provided by the goals for this workshop, stated in terms of the expected teacher behaviors:

When asked to do so, defend, justify, or rationalize contingency management procedures by giving at least three reasons for designing and using such procedures. The following reasons should be mentioned:

Enables the teacher to modify or improve the behavior of a child in the classroom.

Provides an effective means by which to manage the motivation of an individual student.

Improves the chances of a student's success in any subject area.

When asked to describe a previously observed child, describe the child in terms of observable behaviors rather than in terms of motivational, moral, or affective characteristics.

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[1] Ibid., p. 7.

When asked to explain the causation of specific behaviors emitted by a previously observed child, cite stimuli in the child's classroom environment as causative factors father than motivations, moral, or affective characteristics.

Define children's behaviors in such manner as to produce adequate reliability among several observers.

Specify techniques for observing and recording children's behaviors which are appropriate to the nature of the behavioral modification which is to be made.

Cite specific instances of positive social reinforcers, high probability behaviors, aversive social stimuli, and social punishers common for school children in the classroom.

Cite strengths and weaknesses of each of the following behavior modification techniques:

Positive reinforcement of desired behaviors
Positive reinforcement of behavior incompatible to undesired behaviors
Ignoring of undesired behaviors
Punishment of undesired behaviors
Negative reinforcement of desired behavior
Token economies
Performance contracting

When presented with descriptions of specific undesirable classroom behaviors of either individual children or groups of children, prescribe an appropriate behavioral modification technique, identifying specific details in the situation appropriate to the application of the technique.

Recognize technical errors in the application of behavior modification techniques, including errors in timing and consistency of reinforcement contingencies, errors in the selection of reinforcers, errors in changing the reinforcement schedule, errors in effecting shifts from one reinforcer to another, and errors in assessing the success or failure of the application of a technique.[1]

The nature of the instruction and the activities for this workshop are shown in appendix C.

As a prelude to the summer workshop, administrators were given special orientation and training sessions by HumRRO staff. Three elementary principals, the curriculum coordinator, and the project coordinator spent four days in El Paso, Texas reviewing the contents of the workshop and receiving intensive training in contingency management techniques.[1]

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[1] Ibid., pp. 8-9.

> . . . In any event, we'd like each person attending the special session to have had an opportunity to read and study these papers [contingency management studies] before he arrives in El Paso.
>
> If you want, encourage the people to make notes about matters discussed (or not discussed), and this will facilitate communication once our training sessions begin. Remember, people who attend this session are to serve as sources of guidance to teachers who will be attempting to implement the concept in their classrooms in the coming fall. Therefore, the burden is on them to acquire the knowledge and skill that will let them be effective in this regard.[2]

The week before the teacher workshops began another special two day workshop was presented to all school district administrators.[3]

> This workshop was prepared to help administrators help teachers. The essential first step was to supply the administrators with information about what teachers would be learning to do. Thus, the administrative workshop first reviewed the concepts that would be introduced in the teacher workshops, and then turned to the role of the administrator in implementing educational innovations.
>
> The instructional objectives of the administrative workshop were stated as follows:
>
> When necessary, defend or explain the several innovative instructional practices in which teachers and teacher aides in the River Rouge School District have currently been instructed. As a minimum, the workshop participants should be able to offer a general explanation of the following practices:
>
> Development and use of instructional objectives in the classroom.
>
> Development and use of learning modules and mastery tests in instruction.
>
> Use of contingency management techniques in improving classroom learning and performance.
>
> When informed of changes in instructional practices that a teacher is currently employing, evaluate the possible merit of the changes. The evaluation should be made in terms of the consistency of the changes with known goals of the several workshops.
>
> Demonstrate a willingness, by publicly saying so, to permit a teacher to employ novel forms of rewards for the students in her class.
>
> Encourage teachers in their efforts to implement innovative practices in classrooms (e.g., development of learning modules, construction of mastery tests, generation of instructional objectives,

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[1] Compensatory education director's log of 25-28 May 1970.

[2] William H. Melching, personal letter, 7 May 1970.

[3] Compensatory education director's log of 17-18 June 1970.

provision for student pacing, and employment of contingency reinforcement techniques) by declaring, in letters, memoranda, directives, staff meetings, etc., approval of these efforts.[1]

The nature of the instruction and the activities for this workshop are shown in appendix D.

With all administrators briefed and knowledgeable about the workshops, teachers entered the training program the next week. The workshops extended over a period of twenty days. The contingency management workshop was held each morning, and the workshops for objectives and learning modules were held each afternoon.

The contingency management workshop, which required classroom practice, was scheduled in conjunction with instruction for disadvantaged students. The concepts and techniques of contingency management were presented and discussed for an hour each day before the students arrived. While the teachers worked with students, HumRRO staff members and the project coordinator observed and recorded teacher performance for feedback to the teachers the next morning.[2]

The afternoons were spent learning to write instructional objectives for reading and mathematics and generating learning modules for the content areas. At first, teachers wrote objectives to be used during summer school instruction; later, they wrote objectives for the instruction they expected to present in their own classes in the coming year.[3]

At the conclusion of the workshops, HumRRO researchers reported that

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[1] Melching, Frederickson, and Whitmore, Introducing Innovation in Instruction, p. 9.

[2] Ibid., pp. 15-19.

[3] Ibid., pp. 12-15.

> In general, attitudes of administrators, teachers, and teacher aides appeared to be quite positive throughout the set of workshops.
>
> As a product of the activities in the instructional objectives and the learning modules workshops, the group of teachers prepared drafts of performance-type objectives for reading and mathematics for grades one, two, and three. While these products were not completely adequate, they were an acceptable beginning, and provided grounds on which a teacher could base instruction during the coming year.
>
> In the contingency management workshop, the teachers made considerable progress in learning to apply CM techniques of reward and reinforcement in their classroom behaviors with pupils. During the two-week period in which teacher observations were recorded, data were obtained on three teacher behaviors: increase in providing response opportunities to pupils, increase in 'approving behaviors,' and decrease in 'disapproving behaviors.' For all three, there was a significant change in the desired direction (p .001) over the course of the observations.[1]

Furthermore, they concluded that

> The results indicate that, within the confines of the workshop, the teachers were able to implement the techniques introduced. That is, teachers did demonstrate a capability to write performance objectives, develop learning modules, and apply contingency management in the classroom.
>
> The workshops resulted in modification in teacher classroom practices in classroom management.
>
> Teachers readily accept contingency management techniques for working with pupils in the classroom. This was evident by their enthusiasm throughout the workshop.
>
> The development of group products is evidence of the ability of teachers, within the workshop environment, to cooperate and coordinate their activities. For example, within the limited time available for the work, the teachers did produce a fairly useful set of behavioral objectives for grades one, two, and three.[2]

After the interorganizational model

1970-1971 school year

In order to sustain the progress made by teachers in the summer workshop, HumRRO prepared a follow-on program for the 1970-71 school year.

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[1] Ibid, vi.

[2] Ibid., vi-vii.

One premise of the follow-on program was that making a verbal or written committment to perform specific activities will increase the probability that a person will indeed perform such activities. An attempt was made to get each teacher to make a formal commitment for implementing the use of behavioral objectives and contingency management in her instructional procedures. Making such a commitment assured the teacher of administrative support for her change activities.[1]

The overall approach to the follow-on program involved group and individual meetings with teachers with periodic observation of teacher classroom behavior. Support for the teachers was provided by the school district administrators and principals and by a team of HumRRO researchers. The compensatory education director was appointed the program coordinator for the follow-on program, and it was his responsibility to conduct the meetings with teachers and to observe the teachers periodically in the classroom.

Shortly after the project teachers got their classrooms organized and began their instructional programs, one HumRRO researcher initiated the first of several visits to the project. Four days were spent in the district, one day at each of the four elementary schools. Hour long conferences were scheduled with each teacher for the HumRRO scientist and the program coordinator to provide her with help in preparing a contingency management program.[2]

As the teachers began their contingency management programs, the program coordinator visited their classrooms once a week to insure successful implementation. Teachers received immediate and detailed feedback after each visit. Teachers following their program procedures correctly were praised, while those who encountered difficulty, were given suggestions for improvement.

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[1] Frederickson, Whitmore, and Melching, Innovation in Classroom Management, p. 11.

[2] Compensatory education director's log of 6-9 October 1970.

All project teachers met at a general meeting in early November to report on their own accomplishments to date. Teachers were asked to describe in detail how they set up their contingency management programs, and to describe how they were working. Teacher utilizations of instructional objectives were also discussed. Time was provided for teachers to share their successes and failures and to gain group reinforcement for their efforts.[1]

A third meeting, with a HumRRO staff member present, occurred later in the month. By individual school building, teachers were released from their regular classroom duties to attend half-day meetings to discuss their classroom activities. Problems faced by individual teachers were discussed and solutions offered. Time was also set aside for individual conferences with the HumRRO scientist.[2]

As a means of acknowledging and reinforcing successful practices of teachers and disseminating project information, a project newsletter, "The Bugle," was developed and distributed three times during the year. The newsletter identified teachers by name and described in detail the procedures of their programs. A section of each issue was devoted to technical aspects of contingency management to provide teachers with additional knowledge about the concept and rationale.

In January, one HumRRO scientist spent two days observing project teachers in their classrooms. He was particularly interested in how extensively teachers were using objectives in their teaching and their progress in employing contingency management techniques. After seeing all teachers, the researcher met with the project teachers in a joint meeting to discuss his finding, to acknowledge teacher success, and to offer recommendations for overcoming difficulties encountered in applying program practices.[1]

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[1] Compensatory education director's log of 5 November 1970.

[2] Compensatory education director's log of 17-20 November 1970.

A month later the program coordinator called the teachers together again for more sharing of experiences. After general announcements were made, teachers grouped themselves according to interest topics (e.g., academic or social behavior) to share promising practices and materials and to help teachers encountering problems.[2]

Another visit by two HumRRO staffers took place on 5-6 April at which time thirty minute conferences were held with each teacher for the purpose of

"1. Talking with project teachers in depth about CM and objectives.
"2. Providing assistance in solving technical problems you are faced with.
"3. Up-dating staff on current project developments."[3]

During the April visit, the HumRRO team met with the superintendent, curriculum coordinator, and building principals to present an assessment of the project. Following the administrative meeting, the researchers met with a group of teachers who had expressed interest in attending another summer workshop similar to that of 1970.

> The HumRRO team is interested in talking with participants with respect to problems teachers face so that they may prepare a more

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[1] Compensatory education director's log of 26-27 January 1971.

[2] Compensatory education director's log of 22 February 1971.

[3] Fredric A. Rivkin, Memorandum to HumRRO Project Staff, 25 March 1971, Federal Files, River Rouge School District, Michigan.

relevant workshop for the River Rouge Schools. This is also an occasion for you to ask questions of the HumRRO team.[1]

The final HumRRO visit was made on 25-26 May. Observations of the teachers in their classrooms were made, and the researcher's impressions were expressed at a combined project staff meeting. The HumRRO researcher reviewed the year's activities to show the teachers how much progress they had made and commended them for their efforts.[2]

> The program during the 1970-71 school year was sufficiently successful to generate enough interest for a workshop series to be designed for the summer of 1971. Again, a group of 24 volunteer teachers was selected to participate. Most of these teachers had requested that they be included in a subsequent program if one should be conducted. These requests provided the impetus for developing a program for the summer of 1971 with a format similar to that of the workshops presented during the summer of 1970.[3]

The workshop conducted during the summer of 1971 replicated the summer 1970 workshop in nearly all aspects.[4] An exception was the use by teachers of more highly structured individualized materials. This feature, incidentally, interfered with collecting observational data on teacher behavior as it was done in the summer of 1970. Otherwise, the workshop format was followed intact.

1971-1972 school year

Another year-long follow-on program followed completion of the summer 1971 workshop. Included in the second year inservice training were teachers from the 1970-71 project and the newly trained teachers from the summer 1971 workshop. A total of forty-eight teachers made up the project teaching staff.

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[1] Fredric A. Rivkin, Memorandum to 1971 Summer Workshop Teachers, 24 March 1971, Federal Files, River Rouge School District, Michigan.

[2] Compensatory education director's log of 25-26 May 1971.

[3] Frederickson, Whitmore, and Melching, Innovation in Classroom Management, p. 46.

[4] For a detailed description of the 1970 summer workshop see pp. 122-126.

Shortly after school opened in September, teachers were notified of the details of the follow-on program which included entering into a written agreement with the program coordinator as a condition for participation in the follow-on program.

> A determination or identification of 1971-72 project teachers must be made. To do this a set of teacher objectives has been prepared coupled with a set of Program Coordinator (P.C.) responsibilities. Teachers who agree to work toward the achievement of all of the objectives will be included in the project and will be entitled to receive the services, benefits, and headaches associated with this educational enterprise.
>
> So, will you study the attached sets of objectives carefully. I'll be around to see you very shortly to hear your decision. If you have any questions, talk to your principal, call, or wait until we get together.[1]

The duties of the program coordinator and the teacher objectives are included in their entirety because they served to guide inservice training activities.

"PROGRAM COORDINATOR (P.C.) RESPONSIBILITIES

"The P.C. Agrees To:

"1. Observe teacher behavior in the classroom and provide feedback on teacher performance. Classroom visits are to be made on a regularly scheduled basis throughout the school year.
"2. Provide assistance in: (1) planning and carrying out CM Programs; (2) overcoming technical problems associated with program operation; (3) creating a positively reinforcing learning environment; and (4) using individualized instruction.
"3. Prepare and distribute status reports on the project.
"4. Publish and distribute a project newsletter on a regular basis.
"5. Provide administrative support for innovative teaching practices consistent with individualization, objectives, and CM.
"6. Provide teacher aide assistance to project teachers. This assistance is, of course, dependent on the level of Federal and

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[1] Fredric A. Rivkin, Memorandum to HumRRO Trained Teachers and Administrators, 15 September 1971, Federal Files, River Rouge School District, Michigan p. 1.

State funding.

"7. Provide funds for the purchase of reinforcers to be used in CM Programs.

"8. Provide funds for individualized instructional material that is consistent with project objectives.

"9. Publicly acknowledge, verbally and in writing, teachers who conduct successful and/or innovative teaching practices that are consistent with workshop objectives.

"FOLLOW-UP PROGRAM - TEACHER OBJECTIVES

"1. Create a positively reinforcing non-aversive learning environment in the classroom. This is determined by the observation of teaching behaviors. Some of the behaviors to be observed include the number of:
    "a. Response opportunities
    "b. Approving behaviors
    "c. Disapproving behaviors

"2. Use pupil performance objectives in the teaching of reading and arithmetic. Use a check-off system to record pupil achievement of objectives.

"3. Provide opportunities for pupils to learn on an individualized or self-paced basis.

"4. Use Contingency Management (CM) procedures and techniques in a formal program to change pupil behavior (social and academic) as the need arises. Before beginning a CM Program, submit a written description of program procedures to the P.C. Supply data on results of program.

"5. Attend regularly scheduled follow-up meetings with project staff.

"6. Prepare and submit reports on project progress.
    "The achievement of these objectives should result in:
    "1. The teacher passing a written CM examination and becoming certified in Contingency Management.
    "2. Each pupil in the class improving by one (1) grade point equivalent in reading and arithmetic."[1]

The following week, the program coordinator visited each elementary school building to determine those teachers willing to participate in the follow-on program under the proposed agreement. A total of thirty-one teachers agreed to participate.[2]

The follow-on program for 1971-72 paralleled that of the previous year in format. HumRRO staff members made two trips to the district

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[1] Ibid., pp. 2-3.

[2] Compensatory education director's log of 22-24 September 1971.

[illegible] the year. On the first visit in November, teachers were observed in their classrooms, and were given acknowledgement and technical advice on their program practices.[1] Also, individual conferences were held with teachers needing specialized help.

On the evening of 1 December, HumRRO researchers presented the teachers with expanded sets of program coordinator duties and teacher performance objectives.[2] The meaning of the objectives and how they were to be used were discussed.

The HumRRO team came again in February and held private conferences with each project teacher to help overcome problems arising from the use of contingency management. The team also sought information about the use of objectives by teachers. After individual teacher meetings were completed, a system-wide meeting of project teachers was held for a HumRRO team report on the results of their accumulated conferences and observations.[3]

The program coordinator continued to observe each teacher's classroom behavior at least once every month. As teachers identified sources of concern with their instructional program or with children, he made suggestions for the teacher to try. Many of the recommendations made to teachers resulted from seeing other teachers' programs and procedures. In addition to the face-to-face dissemination of information and teaching techniques, the program coordinator prepared three issues of "The Bugle," the project newsletter.

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[1] Compensatory education director's log of 29 November - 2 December 1971.

[2] For a detailed description of the program coordinator duties and teacher performance objectives see appendixes E and F, respectively.

[3] Compensatory education director's log of 14-18 February 1972.

A series of lunch time study sessions was inaugurated as another way to increase teacher knowledge of contingency management procedures. Scheduled once every two weeks during the teacher's lunch hour, "The purpose of these meetings is to present to you the procedures and results of CONTINGENCY MANAGEMENT research studies that have relevance to your classroom teaching. It is hoped that you can put this kind of information to use immediately."[1] The program coordinator selected research studies from The Journal of Applied Behavioral Analysis pertaining to student behavior and learning problems that teachers face in their classrooms. Copies of the studies were distributed to teachers in digest form, and the program coordinator reviewed the study's methodologies and results.

Rather than calling teachers together at a central location and thereby reducing meeting time, the program coordinator traveled to each elementary school building to conduct the inservice meetings. Therefore, only three sessions were held during the year. Teacher interest in these meetings was regarded as good: forty-six teachers and administrators for the first session, thirty-nine for the second, and forty for the third.[2]

During the 1970-71 school year, project teachers were encouraged to achieve certification for competence in contingency management. Eight teachers passed a written examination on contingency management and received certificates then. During the 1971-72 school year, the requirements for certification were expanded from only a passing score on the written test to include the following criteria:

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[1] Fredric A. Rivkin, Memorandum on Lunch Time Study Sessions, 6 December 1971, Federal Files, River Rouge School District, Michigan.

[2] Compensatory education director's log of 6-9 December 1971, 10-13 January 1972, and 21-24 February 1972.

"1. Creating a positively reinforcing, non-aversive learning environment.
"2. Carrying out a successful contingency management program.
"3. Utilizing objectives in their instruction program.
"4. Achieving a passing score on a written test of contingency management concepts and practices."[1]

Another eight teachers achieved these objectives and received certificates as the school year drew to a close.[2]

In the late spring of 1972, HumRRO was contracted again to develop a third summer workshop that would enable teachers to acquire and practice the skills needed to individualize instruction. The preparation and conduct of the workshop were both unique to the district and a logical next step in the training sequence for teachers.

> Teacher and administrative personnel of the District have expressed interest in acquiring skills that will enable them to employ more effective techniques of individualized instruction. Consistent with its efforts to assist the District to achieve an ever improved in-house capability, HumRRO proposes to provide to elementary teachers of the District explicit guided practice in techniques of individualized instruction. This training will be organized in a fashion that will enhance the ease with which teachers can implement such techniques in their classrooms.
>
> While HumRRO proposes to assume prime responsibility for the organization of the training, it is planned to conduct the workshop with the use of both special outside consultants and in-house teacher personnel. The approach, as planned, has several prominent positive aspects. First, as noted briefly above, the use of in-house teacher personnel is an objective indication of HumRRO's belief that the District should develop its own capability to conduct in-service training. Second, the use of personnel from the District to conduct the training should serve to reduce the cost of the workshop. Third, it is planned to use materials already

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[1] Fred Rivkin, Memorandum on CM Certification, 19 July 1972, Federal Files, River Rouge School District, Michigan.

[2] A sample of the contingency management certificate is contained in appendix G.

possessed by the District as teaching vehicles, supplemented by special materials. Fourth, directly related to this aspect is the fact that, since the workshop will provide training in the use of materials currently possessed by the District, the same materials will be available to the teacher for her use in the subsequent school year. In other words, the teacher will not be asked to practice individualizing instruction by using 'foreign' materials. On the contrary, the materials can be (and are, in many instances) used in regular instruction. Fifth, the materials to be used focus directly on reading and mathematics, two content areas most generally accepted as in need of being individualized. Sixth, the somewhat limited use of consultants and other acknowledged experts in individualized instruction should enhance their impact on the workshop participants. Consultants can devote their efforts to reviewing the work of particpants, providing informative feedback, and giving inspirational comments. Their time, in other words, need not be devoted to routine, picayune details.

APPROACH

This workshop effort will proceed in two phases: Development and Administration.

DEVELOPMENT PHASE

The workshop will be developed in seven steps:

1. A general, functional model for administering individualized instructional materials will be developed as a guide for identifying the tasks involved in using the reading and mathematics currently possessed by the District.
2. Tasks believed to be critical in the administration of each set of materials will be identified.
3. Critical situations will be identified for the performance of each task.
4. A set of simply stated instructions will be prepared for performance of each critical task in each critical situation.
5. Simulated paper-and-pencil exercises will be prepared for each critical situation of each critical task.
6. The components and principles of the general model, the task instructions and the exercises for each set of materials will be arranged into a set of appropriately sequenced learning modules.
7. Instructions will be prepared for administering each learning module.[1]

Five classroom teachers, all having demonstrated competence in individualizing reading or mathematics instruction in their classrooms, were selected to serve as workshop instructors. They spent five days at the El Paso HumRRO office acquiring the knowledge and skills needed to conduct the workshop. For the instructor's workshop, HumRRO had prepared a set of instructions for the instructors to follow in training their colleagues to use individualized materials. Included in the instructions were revised and very detailed procedural guides for the reading and mathematics materials and a set of instructor duties. The five days were spent in reviewing, revising, and planning the workshop training format.[1]

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[1] Human Resources Research Organization, "Organization and Conduct of a Workshop in Individualized Instruction," pp. 1-3.

The organization of the workshop for classroom teachers was like that of the two preceeding workshops. Extending for a period of twenty days, participating teachers met for three hours each day. Each participant taught one hour of reading and one hour of arithmetic. During the third hour, participants met with the workshop instructors where they received instruction, feedback, and other special guidance resulting from daily observations conducted by the instructors.[2]

In instructing teachers in the use of reading and mathematics materials, the instructors explained and demonstrated procedures to be followed. Next, teachers were given time to practice the materials' performance steps.

The performance steps to be followed by each teacher included:

"1. Go over the Steps by himself until he is able to describe each step in order.
"2. Describe each Step to a fellow participant and indicate approximate materials to be used.
"3. Answer 'what if' questions posed by a participant.

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[1] Human Resources Research Organization, "Comments to Workshop Instructors," Fort Bliss, Tx., [June 1972], pp. 1-7. (Typewritten.)

[2] Compensatory education director's log of 26 June - 21 July 1972.

"4. Demonstrate procedures to a workshop instructor and answer 'what if' questions."[1]

To provide security and additional expertise to the workshop instructors, an elementary school principal from another school district, experienced in individualizing an entire cirriculum, served as an outside expert. He worked alongside the workshop instructors in providing teachers with technical advice on the individualization process. During the last week of the workshop, one HumRRO researcher spent five days monitoring the teachers as they practiced individualization. He also provided both teachers and workshop instructors with suggestions for improved instruction.[2]

This workshop marked the completion of HumRRO's classroom management and individualization of instruction work in the school district's compensatory education program. Three summer workshops and two year-long follow-on programs resulted in not only changed teacher classroom behavior, but also the district had acquired in-house capability to conduct its own inservice teacher training in a more effective and efficient manner.

1972-1973 school year

Two inservice training programs were undertaken during the year; one immediately after school began in September, and the other during the summer of 1973. The first series of workshops was designed to teach elementary school teachers how to implement a recently developed program for individualizing the teaching of reading using a peer instruction model.

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[1] Human Resources Research Organization, "Some Comments," p. 6.

[2] Compensatory education director's log of 17-21 July 1972.

The first task involved an analysis of the training requirements.

"1. Learn the Phonovisual method of teaching consonant and vowel sounds.
"2. Learn the procedural steps used in the PI model.
"3. Become familiar with the program materials.
"4. Organize and prepare the materials so that they can be put to use in your classroom.
"5. Practice the PI procedures."[1]

A Saturday workshop on the Phonovisual method of teaching was presented to teachers by consultants from the Phonovisual Company. Teachers were instructed in how to pronounce correctly the sounds of consonants and vowels, and then were given opportunities to practice pronouncing the sounds under the consultants' supervision.[2]

A second Saturday morning workshop was given the following week by the program authors, who were also members of the compensatory education staff. They explained the steps to be followed in using the peer instruction model, and then familiarized the teachers with the materials and their organization. Teachers then assembled the materials as they would use them in their own classrooms. The next step was to simulate implementation of the peer instruction teaching procedures. As the teachers practiced using the method, the workshop instructors observed and provided feedback to each teacher team.[3]

At the conclusion of the workshop, a follow-on program, similar to those of the 1970-71 and 1971-72 school years, was instituted.

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[1] Fredric A. Rivkin, Memorandum on Phonovisual Peer Instruction Program Inservice, 11 September 1972, Federal Files, River Rouge School District, Michigan.

[2] Compensatory education director's log of 16 September 1972.

[3] Compensatory education director's log of 23 September 1972.

. . . These workshops were followed up by regularly scheduled classroom visitations by the local Program Coordinators (PC). The visitations enabled the PC's to observe both teacher and pupil performance and to offer the teachers technical assistance as problems arouse. . . ."[1]

It is significant to note that, except for the assistance provided by consultants from the Phonovisual Company, all inservice training was conducted by school district personnel, including the analysis and planning for the inservice training.

The practice of teachers training their colleagues was continued in another workshop conducted during the summer of 1973. Following the pattern of earlier workshops, the training extended over a period of twenty days. Students were given oral language and reading instruction for two hours in the morning followed by a one hour training period for teachers.

Five teachers, trained in previous HumRRO workshops and acknowledged by their colleagues as effective teachers and leaders, served as workshop instructors. They observed teachers in their classrooms daily and provided the teachers with feedback on their performance. The instructors also provided teachers with instruction in using the program materials and various teaching techniques.

After most of the workshop participants had acquired proficiency in conducting their instructional programs, the instructors asked certain teachers to present their instructional program and practices to the rest of the teachers. This served to acknowledge teachers for successful teaching and to disseminate effective programs and procedures to other staff members.[1]

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[1] Rivkin and Dreiman, "Phonovisual Evaluation," p. 2.

To broaden teachers' knowledge and skills, several nationally recognized experts in language development gave one hour presentations on how children acquire language, testing for language deficiencies, techniques for eliciting language, and using the program materials. The presence of experts also served to enhance the leadership role of the workshop instructors.

For the second consecutive year, HumRRO trained teachers conducted inservice training programs for the compensatory education program. The planning and conduct of inservice training activities followed closely the model used by HumRRO: objectives were defined, instructional activities were prepared, appropriate methods were selected, and monitoring and feedback were provided, all in a systemmatic and consistent manner.

1973-1974 school year

To further strengthen the oral language instructional component of the compensatory education program, HumRRO was given another contract to develop and conduct training of teachers. Involving a different team of HumRRO scientists for the inservice program, another training approach was followed.

> While a beginning was made in the 1973 summer program for improving literacy skills using oracy skills, it became clear that teachers are not knowledgeable about the concepts underlying the oracy-to-literacy training sequence; they need guidance and training in identifying language and cognitive skills to be taught using oracy processes; and they need assistance in creating the learning experiences to improve language and cognitive skills.[2]

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[1] Compensatory education director's log of 25 June - 20 July 1973.

[2] Human Resources Research Organization, "Functional Oracy and Literacy," p. 1.

Therefore, the inservice training activities were oriented mainly toward providing teachers with knowledge about the oracy-to-literacy sequence.

A series of single concept papers (e.g., concepts underlying the oracy-to-literacy traninig sequence) were prepared by the HumRRO staff and mailed to the local program coordinator during the school year. The papers, called TOPICS, presented the following aspects of the project: methods of communicating an idea, functional communication, a list of oracy skills, sample teaching activities, and record keeping.[1] The TOPICS were intended to provide teachers with knowledge of the terms and concept so that at a weekend retreat, planned for later in the year, they would be able to prepare instructional objectives and appropriate teaching activities for their own classrooms.

Upon receipt of each TOPIC, the program coordinator distributed them to project teachers with instructions to read each TOPIC and be prepared to discuss its contents.[2] In addition to discussing theoretical points, the program coordinator asked teachers to try out in their classrooms teaching activities suggested in the TOPICS and provide him with feedback on the usefulness and effectiveness of the activities. Three series of lunch time meetings with teachers were held at their respective schools.[3]

Each lunch time meeting with teachers was tape recorded, and a copy was sent to the HumRRO staff for analysis of teacher progress in gaining understanding of the oracy-to-literacy concept. Additionally, the tape recordings were used by HumRRO researchers to prepare TOPICS directly related to concerns and misunderstandings expressed by teachers. A sample TOPIC in response to teacher concern about terminology is found in appendix H.

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[1] Human Resources Research Organization, "PLATO", pp. 3-20.

[2] Fredric A. Rivkin, Memorandum to PLATO Project Folks, 2 November 1973, Federal Files, River Rouge School District, Michigan.

[3] Compensatory education director's log of 13-16 November, 10-13 December 1973, and 13,14,15,17 January 1974.

A weekend retreat for project teachers and administrators at an out-of-town motel constituted the second phase of the training project.

The major activities of the retreat included:

1. A two hour speech about the need for oracy training and the oracy-to-literacy sequence given by the HumRRO project director on Friday evening
2. A one hour speech on memory training on Saturday morning given by the HumRRO project director
3. Five hours Saturday morning and afternoon devoted to teacher preparation of objectives and teaching activities
4. A two hour speech on cognitive development in children presented by a professor from an eastern university
5. Three additional hours on Sunday morning for teachers to finish preparing teaching activities[1]

On the last day of the workshop retreat, the HumRRO team asked the teachers to try out the teaching activities they had prepared with students in their classrooms and report the results to the program coordinator who would send them to the HumRRO team for analysis.

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[1] Tape recordings of the PLATO workshops of 1-3 February 1974, Federal Files, River Rouge School District, Michigan.

In a subsequent TOPIC, the HumRRO team offered further guidance to teachers.

> The first workshop is over. We 'told' you some things. You 'told' us some things. Where do we go from here?
>
> Before we try to answer that question, let's look at what we have now. . . First, we all agree that some children are at a tremendous disadvantage in terms of being able to use language effectively. Second, we know that these language disadvantaged children do not simply 'outgrow' this disadvantage, it follows them throughout life unless remedial action is taken. Third, we know that the functional language and comprehension skills to be taught in Project PLATO (oracy skills) are the foundation upon which the literacy skills of reading and writing are based.
>
> Now, our task is to somehow use our knowledge of this problem to help the children in your classrooms. That, of course, is much easier said than done. For problems of this type, there is no simple, quick answer. In fact, there may be many answers. We are dealing with individual children and that means individual answers.
>
> This group of TOPICS and related material present a slightly altered version of what we have been doing. In this material we have tried to reduce the amount of work on your part and to make the activities a little easier to use. Please remember through that any new developing program requires a little extra work at the beginning and may require many changes and revisions before everyone is satisfied with the product. It's all part of the process of development.
>
> OK, give this material a try. If you don't like it, try to revise it, and if you do, please send us your revision and the results. If you like it, please tell us why. Feedback is also an important part of the development process.[1]

In addition to asking teachers to use their knowledge of children's language problems, the HumRRO researchers provided teachers with additional sample teaching activities and forms on which to record student performance.

Teachers were observed by the program coordinator and a HumRRO researcher at the end of March to assess the teachers' use of oracy teaching activities.[2] This observation and subsequent ones resulted in a request to HumRRO for a modification of the present training approach for the next year's inservice program.[1]

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[1] Human Resources Research Organization, "PLATO," p. 33.

[2] Compensatory education director's log of 28-29 March 1974.

As the summer of 1974 approached, another workshop was scheduled to train another group of teachers to implement the peer instructional reading program. The workshop time frame and organization were similar to those used in earlier workshops. Classroom teachers, expert in the use of the program, instructed participating teachers. The day prior to students entering the program, teachers received six hours of intensive instruction and practice in the use of the instructional materials. Each day as teachers employed the program, workshop instructors observed the teachers and provided them feedback both at the end of the observation period and during the daily hour long instructional period preceeding student arrival at school.[2]

1974-1975 school year

A revised inservice training program for providing teachers with improved capability in teaching oracy skills to students was prepared by HumRRO and accepted by the district's compensatory education program for implementation during the school year. Because a summer block of time was not available to train a larger group of teachers, it was decided to select one teacher from each of the four elementary schools and train her to be a model teacher. A complete description of the training plan proposed by HumRRO researchers is found in appendix I.

Prior to the actual workshop, the HumRRO researchers prepared a set of instructional materials to be used by the teachers for teaching students. These materials included a set of student performance objectives, a set of teaching activities keyed to the objectives, and an oracy test to be administered to students.[1]

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[1] For a description of the changes requested in training activities see pp. 89-90.

[2] Compensatory education director's log of 1-26 July 1974.

Held during the week before school opened in September, the workshop teachers spent most of their time reviewing the HumRRO prepared materials. The teachers selected, from a pool, test items that were acceptable to them, and then the reviewed each item for clarity and scoring. Next, the teachers reviewed the content of each HumRRO prepared teaching item. After this step, the teachers ranked all teaching items in a given skill category according to difficulty. Where needed, teachers prepared stimulus materials for teaching items.[2]

Having acquired the rationale and philosphy of the oracy program and familiarity with the materials and practices to be employed, teachers put the program into operation. In doing so, teachers were informed of the kinds of support and guidance they would receive during the project year.

The year-long follow-on program contained the following elements and procedures used in earlier workshops.

> As of today I'll be coming around once a week to observe your ORTRAIN sessions with target children. I'll be in during the times you specified as ORTRAIN time.
>
> I'll come into your room and quietly sit down and observe. Observations will last about 15-20 minutes. When I'm done, I'll leave you a copy of any notes or suggestions I have.[3]

The observational schedule was altered from weekly to once a month as the teachers became more comfortable with the program materials and procedures.

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[1] Human Resources Research Organization, Western Division, "Project ORTRAIN," Carmel, Calif., 1974. (Typewritten.)

[2] Compensatory education director's log of 25-30 August 1974.

[3] Fredric A. Rivkin, Memorandum to ORTRAIN staff, 4 November 1974, Federal Files, River Rouge School District, Michigan.

A set of teacher objectives had been prepared and distributed to project teachers, and the objectives guided the program coordinator's observations. These objectives included the following:

"a. Give the target students lots of chances to use language (e.g., response opportunities).
"b. Praise the students for correct responses (e.g., approving behaviors).
"c. Eliminate disapproving behaviors.
"d. Provide time-on-task daily.
"e. Insist on student mastery of a lesson - 100%.
"f. Keep records daily."[1]

During the project year, a HumRRO scientist made two trips to monitor teacher and program progress.[2] Each teacher was observed for thirty minutes as she instructed students. After the observation period, she was given feedback and suggestions. Then the four teachers met as a group and shared their experiences, discussed problems they encountered, and received guidance from the HumRRO researcher is using the oracy materials and in improving their classroom practices.

As the project drew to a close, HumRRO prepared a plan to train other teachers to implement the oracy program in succeeding years.

> . . . Step 1 deals with designing a workshop which can be run by the present batch of oracy teachers at some time in the future to train other teachers to do oracy. This will help build a permanent capability for oracy training with the District as long as the present oracy teachers remain. So we'll be running a workshop to build a workshop.[3]

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[1] Fredric A. Rivkin, Memorandum to ORTRAIN staff, 16 October 1974, Federal Files, River Rouge School District, Michigan, p. 2.

[2] Compensatory education director's log of 13-14 November 1974 and 19-20 March 1975.

[3] Paul G. Whitmore, personal letter, 27 May 1975.

The four oracy teachers participated in a five day HumRRO-directed workshop immediately after school ended to create such a workshop.[1] HumRRO staff members, aided by the teachers, prepared a manual to be used in explaining the oracy program and training other teachers.[2] With the program manual and trained and experienced teachers and administrators, the district possessed the in-house ability to extend the oracy program into the years ahead.

To recapitulate the inservice teacher training activities before and after the interorganizational model, summary chart 2 is presented below.

SUMMARY CHART 2

1965 TO 1970: PROGRAMS BEFORE THE INTERORGANIZATIONAL MODEL

1965-66 Program

Initiated inservice training to provide teachers knowledge about the problems of disadvantaged students. Teachers visited schools with exemplary programs. A series of morning workshops presented techniques for teaching reading. National authorities served as resource persons.

1966-67 Program

Inservice training focused on techniques for teaching reading. Reading Center teachers conducted orientation sessions in the Center. Content of meetings devoted to Center operation and materials available for teacher use. Three day workshop presented to teachers prior to summer school program. Reading specialist from nearby district taught teachers how to test, diagnose, select materials, and evaluate pupil progress. University professors gave speeches on teaching disadvantaged students.

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[1] Compensatory education director's log of 16-20 June 1975.

[2] River Rouge School District, "ORTRAIN GUIDEBOOK," River Rouge, Mich., June 1975. (Typewritten.)

1967-68 Program:

Title I inservice continued as in preceeding year. Section 4 program concentrated on imparting knowledge to teachers about language development. Experts gave a series of one to three hour presentations on language development and communication skills. Summer school teachers given three day workshop on teaching reading by Reading Center teachers.

1968-69 Program:

No formalized inservice training programs were held because of reduction in funds.

1969-70 Program:

Inservice delayed for six months. Later in year, teacher aides were trained to decorate classrooms and use audio-visual equipment by local building staff members. Title I teachers conducted meetings on reading and mathematics. In a four week summer program, classroom teachers learned to write instructional objectives, prepare learning modules, and use contingency management techniques. Teachers were observed daily as they taught students. Frequent feedback was provided. Administrators given two day workshop preceeding teacher workshop.

1971 TO 1975: PROGRAMS AFTER THE INTERORGANIZATIONAL MODEL

1970-71 Program:

Teachers from summer workshop participated in follow-on program during school year. Teachers were observed regularly throughout the year by coordinator. He gave them feedback in the form of reinforcement and guidance on their use of objectives and contingency management. External change agent visited teachers' classrooms frequently. Change agent and coordinator held individual and group conferences with teachers. Teachers' practices disseminated in project newsletter. Summer workshop, similar to 1970, was repeated for another group of classroom teachers. Emphasized used of individualized materials. Selected teachers aided change agent in training teachers.

1971-72 Program:

Full year follow-on program for teachers in past two summer workshops. Employed teacher performance objectives and coordinator duties in management of follow-on. Coordinator observed teachers regularly and gave them feedback on their use of objectives, contingency management practices, and use of individualized materials. Frequent visits by change agent for individual and group conferences with teachers. Project newsletter used to disseminate teacher practices. Teachers attended study sessions on contingency management research. Four week summer workshop scheduled to train teachers to use individualized materials. Several project teachers, specially trained by change agent, conducted the workshop. Change agent monitored last week of workshop.

1972-73 Program:

Two days at the beginning of the year were devoted to training classroom teachers in the use of a locally developed peer instructional program. During the year, coordinators observed teachers and provided feedback as part of the follow-on program. A four week summer workshop, following the format of earlier workshop featured monitoring of teacher performance, immediate feedback, and expert guidance provided by peer instructors.

1973-74 Program:

Inservice focused on improved oracy (oral language) instruction. The aim was to increase teachers' knowledge of the oracy concept. Local coordinator acted as intermediary between change agent and project teachers. Single concept papers were prepared by the change agent and mailed to the coordinator, who discussed the concepts with teachers in group meetings. Instructional objectives were prepared by teachers at a weekend retreat. Some monitoring of teachers' classrooms. During a four week summer workshop, teachers practiced using individualized materials and oracy activities. Selected teachers acted as workshop instructors. For participants, the workshop freatured instruction, practice, observation, feedback, and technical advice.

1974-75 Program:

One week workshop given before school year began. Teachers prepared materials and practiced using them under change agent's supervision. During school year, teachers were observed regularly and given feedback by the change agent and local coordinator. Several group meetings were held with teachers for reinforcement and information sharing. Teacher performance objectives guided monitoring by the coordinator.

Judges' Results

Three independent judges were selected to sort, according to their estimation of effectiveness, a set of ten index cards containing summaries of yearly inservice training activities. The judges divided the cards into groups of more effective and less effective activities. Then, they selected the group which they thought came first chronologically.

The results of the sorting procedure favored the inservice that came after the interorganizational model. All three judges selected the years 1970-71 through 1974-75 as those they regarded as more effective inservice training activities. One judge included the 1969-70 year as a more effective one. Two of the three judges regarded 1965-66 through 1969-70 as less effective years. Furthermore, two judges selected the 1965-66 to 1969-70 period as the first set of inservices activities conducted. The third judge chose the 1965-66 to 1968-69 period as that coming first.

Summary

In review, improved inservice training activities were brought about as a result of HumRRO's intervention in the district's compensatory education program. The change of approach and associated activities began in the summer of 1970 and continued uninterrupted through 1974-75 school year.

HumRRO introduced a behaviorist orientation and a system analytic approach to inservice training activities. Training objectives were clearly stated in terms of desired participant actions. Teachers were

were given explicit instructions and ample opportunities to practice using innovative techniques with frequent supervision and informative feedback. Furthermore, inservice activities demanded active participation by teachers.

The HumRRO-designed inservice training was a stark contrast to inservice prior to the summer of 1970. Early training programs were content oriented and usually of one day's duration. No large blocks of time were set aside for training. Typically, the workshop instructor presented his information, answered questions, offered recommendations, and left. There were no follow-up provisions. Finally, the lack of explicit teacher training objectives and standards of performance prevented both school administrators and teachers from knowing whether or not training activities were effective.

Thus, HumRRO's influence and training programs gave the district teachers trained to be more effective in using individualized materials, in teaching students, and most importantly, the capability to carry out its own inservice training in the future.

Student Performance

The ultimate criterion of any educational program is improved student performance. Within the framework of compensatory education in the River Rouge School District, improvement was sought for students deficient by at least one year in the basic cognitive skills of reading and mathematics. Thus, this section focuses on student performance in reading and mathematics.

Most of the student performance data reported in this study were obtained from annual compensatory education program evaluations prepared by the district and submitted to the Michigan Department of Education between the 1965-66 and 1974-75 school years. Usually the evaluation reports contained student achievement test scores for reading and mathematics expressed in terms of grade equivalent units. In cases where criterion-referenced tests were administered, the total number of test objectives administered and the number of test objectives achieved by students were reported.

As a means to show changes in student performance, a pretest--posttest design was used in which students were administered the California Achievement Test before the instructional program started and again at the end of the program. Testing was undertaken in early October and in late May; thus the actual instruction time between tests was approximately eight months. Gain scores were computed for each student by subtracting his pretest score from his posttest score. All standardized test scores were expressed in grade level scores or, more properly, grade equivalent units.

The reading achievement test scores for students served by the Title I programs between the 1965-66 and 1969-70 school years are given in table 5. Because the programs of early years of Title I were mainly organizational in nature, no test data were collected on student achievement in the 1965-66 and 1966-67 school years. During the 1967-68 school year, only students in grades three through six were served by the program, thus no data were collected for second grade students.

For school years 1967-68 through 1969-70, table 5 shows the average gain in grade equivalent units for all Title I students to be .9, .7, and .9.

For the 1970-71 school year, no pretest and posttest averages were calculated for the annual evaluation. Instead, a distribution

TABLE 5

READING GAIN SCORES OF TITLE I STUDENTS BETWEEN THE YEARS 1965-1966 THROUGH 1969-1970

Grade Level	1965-1966			1966-67			1967-68			1968-69			1969-70		
	Pre-test Avg.	Post-test Avg.	Gain	Pre-test Avg.	Post-test Avg.	Gain	Pre-test Avg.	Post-test Avg.	Gain	Pre-test Avg.	Post-test Avg.	Gain	Pre-test Avg.	Post-test Avg.	Gain
2	. .	. .	. .	. .	. .	. .	. .	. .	. .	1.8	2.4	.6	1.1	2.1	1.0
3	. .	. .	. .	. .	. .	. .	1.2	2.2	1.0	3.0	3.8	.8	1.9	2.3	.4
4	. .	. .	. .	. .	. .	. .	3.2	4.9	1.7	2.7	2.9	.2	1.1	2.7	1.6
5	. .	. .	. .	. .	. .	. .	2.3	3.0	.7	2.8	3.6	.8	2.8	3.6	.8
6	. .	. .	. .	. .	. .	. .	2.5	2.9	.4	4.6	5.5	.9	3.5	4.2	.7
Average Gain			. .			. .			.9			.7			.9

of students by months gained in reading achievement was prepared. From table 6 it can be determined that sixty-four students gained at least seven months in reading achievement. In other words, of the total of 124 students, approximately fifty percent gained month for month.

TABLE 6

READING ACHIEVEMENT GAINS DURING
THE 1970-1971 SCHOOL YEAR

Months Gained	No. Students
0 - 3	16
4 - 6	44
7 - 10	42
11 - 20	14
21 - 30	8
Total	124

With respect to school years 1970-71 through 1974-75, the period during which the interorganizational model was in effect, table 7 shows that the smallest average gain in reading scores was 1.2, the largest 1.5. The approximate overall average is 1.4. This value is considerably larger than the value associated with the first period (.8).

Achievement gains for students served by the State compensatory education program were reported differently from those reported in the federal Title I evaluations. Furthermore, no standardized achievement test data were available prior to the 1970-71 school year. During this period, evaluation data consisted of teacher and student responses to questionnaires and attitude inventories and, as such, are not useful and relevant. The achievement data collected during the 1970-71 school year consisted of posttest scores only and, therefore, they are not included in this study.

TABLE 7

READING GAIN SCORES OF TITLE I STUDENTS BETWEEN THE YEARS 1970-1971 THROUGH 1974-1975

Grade Level	1970-1971			1971-72			1972-73			1973-74			1974-75		
	Pre-test Avg.	Post-test Avg.	Gain	Pre-test Avg.	Post-test Avg.	Gain	Pre-test Avg.	Post-test Avg.	Gain	Pre-test Avg.	Post-test Avg.	Gain	Pre-test Avg.	Post-test Avg.	Gain
2	. .	. .	. .	1.3	2.5	1.2	.8	2.3	1.5	1.0	2.5	1.5	1.0	2.2	1.2
3	. .	. .	. .	1.3	2.4	1.1	.9	2.4	1.5	.9	2.4	1.5	1.3	2.8	1.5
4	. .	. .	. .	2.5	3.6	1.1	2.2	3.9	1.7	2.3	3.9	1.6	2.1	3.7	1.6
5	. .	. .	. .	2.5	3.7	1.2	2.6	4.1	1.5	2.8	4.3	1.5	3.3	4.4	1.1
6	. .	. .	. .	2.8	4.1	1.3	3.7	4.8	1.1	3.5	4.8	1.3	3.4	4.6	1.2
Average Gain						1.2			1.5			1.5			1.3

Because of an accountability feature built into Michigan's compensatory education programs between the 1971-72 and 1974-75 school years, student performance data were reported in terms of the number of students who achieved a minimum achievement criterion of 75 percent of one year's gain in grade equivalent units or 75 percent of a set of predetermined reading and mathematics objectives.

In order to determine the level of accomplishment for each student, the Michigan Department of Education required school districts to use certain formulas: one for norm referenced tests and another for criterion-referenced tests. For norm referenced tests, the following formula was used:

Let A = pretest reading score in grade equivalent units

Let B = pretest mathematics score in grade equivalent units

Let C = posttest reading score in grade equivalent units

Let D = posttest mathematics score in grade equivalent units

$$\frac{(C+D) - (A+B)}{2} = \text{average gain score for reading and mathematics}$$

$$\frac{\text{Gain Score} \times 100}{\text{Program Duration}} = \text{percent of accomplishment}$$

For criterion-referenced tests, the following formula was used:

Let A = reading objectives mastered on posttest

Let B = mathematics objectives mastered on posttest

Let C = total reading objectives

Let D = total mathematics objectives

$$\frac{\frac{A}{C} + \frac{B}{D}}{2} \times 100 = \text{percent of accomplishment}$$

Table 8 contains the percentages of students who met or exceeded the criterion of 75 percent accomplishment between the 1971-72 and 1974-75 school years. Table 8 shows that compared with school year 1971-72, performance improved in succeeding school years.

TABLE 8

PERCENTAGES OF MICHIGAN COMPENSATORY EDUCATION STUDENT ACHIEVEMENT OF 75 PERCENT ACCOMPLISHMENT IN READING AND MATHEMATICS BETWEEN THE 1971-1972 AND 1974-1975 SCHOOL YEARS

School Years	Percent of Student Achievement of 75 Percent Accomplishment
1971-1972	66.0
1972-1973	70.7
1973-1974	72.0
1974-1975	80.0

In evaluating the effects of their work in the school district during the 1971-72 school year, the HumRRO staff compared the academic achievement of students of project and non-project teachers. Reading and mathematics gain scores were obtained from a pretest and posttest using the California Achievement Test.

Table 9 shows that the average gain in grade equivalent units for all students of project teachers was 1.02 for reading and 1.08 for mathematics. The target students, therefore, readily exceeded the criterion of .75 grade level established by the Michigan Department of Education.

The performance of students of non-project teachers was compared with students of project teachers.

TABLE 9

MEAN GAIN IN GRADE EQUIVALENT SCORES FOR TARGET STUDENTS

Grade	Number of Teachers	Reading		Mathematics	
		Number of Students	Mean Gain in G.E.	Number of Students	Mean Gain in G.E.
2	5	59	.99	61	.74
3	6	76	1.14	75	1.46
4	3	33	.87	33	.98
5	3	28	1.19	28	1.21
6	5	45	.74	45	1.07
7	2	21	1.13	20	.74
Total	24	262	1.02	262	1.08

SOURCE: Paul G. Whitmore, William H. Melching, and Edward W. Frederickson, Gain in Student Achievement as a Function of Inservice Teacher Training in Classroom Management Techniques (Alexandria, Va.: Human Resources Research Organization, Technical Report 72-26, October 1972): 10 Table 1.

> To determine whether the gains of program teachers (target and non-target students combined) were greater than those which might have been expected had teachers not received special inservice training, a comparison was made with gains shown by students in classes taught by non-program teachers.
>
> To obtain meaningful measures of gain for non-program classes (or non-program teachers), . . . pretest and posttest means were calculated for each class. Then, subtracting the mean pretest score from the mean posttest score, a distribution of mean gain scores was produced. The mean of this distribution was compared with the mean of classes of all program teachers.
>
> To compare the mean gain in achievement of program teachers with non-program teachers, a simple t test was employed.[1]

Table 10 shows that each t was highly significant. In terms of student performance, the students of program teachers made significantly greater gains in achievement than did students of non-program teachers.

TABLE 10

COMPARISON OF PERFORMANCE OF PROGRAM AND NON-PROGRAM TEACHERS IN TERMS OF MEAN GAIN SCORES

Group	N	Reading		Mathematics	
		Mean Gain Score	SD	Mean Gain Score	SD
Program	24	1.11	.325	1.20	.449
Non-Program . .	34	.55	.461	.63	.435
		t=5.09 p<.001		t=4.83 p<.001	

SOURCE: Paul G. Whitmore, William H. Melching, and Edward W. Frederickson, Gain in Student Achievement as a Function of Inservice Teacher Training in Classroom Management Techniques (Alexandria, Va.: Human Resources Research Organization, Technical Report 72-26, October 1972): 12 Table 4.

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[1] Whitmore, Melching, and Frederickson, Gain in Student Achievement, p. 11.

During the 1972-73 school year, the Phonovisual Peer Instruction Program was used by teachers as the instructional vehicle to overcome student reading deficiencies. Training procedures acquired from HumRRO workshops were incorporated in the development and operation of the program.

For the purpose of evaluating the effectiveness of the instructional program, data on the performance of students at four different grade levels were gathered. Second, fourth, fifth, and sixth grade students involved in project and non-project groups were tested in late September 1972 and again in May 1973 with the California Achievement Test. Average gains in grade equivalent units were computed for the project groups.

Table 11 shows the average gain scores for students who received the special program were 1.82 for reading vocabulary, 1.27 for reading comprehension, and 1.67 for spelling. Table 12 shows the gain scores for students taught by the conventional reading program were .99 for reading vocabulary, .80 for reading comprehension, and .96 for spelling.

To compare the average gain in achievement between the project and non-project students, a t test was used. The results of this analysis for the two groups on the three sub-tests are shown in table 13.

The t test values indicate that the project students gained significantly more than the control group. These grade equivalent gains for the project students were statistically valid on all three subtests used in the evaluation.

TABLE 11

AVERAGE GAIN IN GRADE EQUIVALENT SCORES FOR PPIP STUDENTS

			Reading		Spelling
			Vocab.	Comp.	
Grade Level	No. of Teachers	No. of Pupils	Avg. Gain	Avg. Gain	Avg. Gain
2	4	17	1.43	.99	1.21
4	2	26	2.97	1.45	2.18
5	3	26	1.10	1.23	1.28
6	2	36	1.78	1.39	2.01
			1.82	1.27	1.67

SOURCE: Fredric A. Rivkin and Martha Dreiman, "An Evaluation of the Phonovisual Peer Instruction Program" (River Rouge School District, Mich., October 1973): 4 Table 1.

TABLE 12

AVERAGE GAIN IN GRADE EQUIVALENT SCORES FOR CONTROL STUDENTS

Grade Level	No. of Teachers	No. of Pupils	Reading		Spelling
			Vocab.	Comp.	
			Avg. Gain	Avg. Gain	Avg. Gain
2	2	51	1.01	.55	.75
4	2	46	.98	.99	1.27
5	2	59	.77	.83	.88
6	2	54	1.21	.81	.94
			.99	.80	.96

SOURCE: Fredric A. Rivkin and Martha Dreiman, "An Evaluation of the Phonovisual Peer Instruction Program" (River Rouge School District, Mich., October 1973): 4 Table 2.

TABLE 13

COMPARISON OF PERFORMANCE OF PPIP AND CONTROL STUDENTS IN TERMS OF AVERAGE GRADE EQUIVALENT GAIN SCORES

Group	No.	Reading Vocab.		Reading Comp.		Spelling	
		Avg. Gain	Std. Dev.	Avg. Gain	Std. Dev.	Avg. Gain	Std. Dev.
PPIP	105	1.82	.301	1.27	.419	1.67	.354
Control	210	.99	.433	.80	.410	.96	.425
		t=5.01 p<.001		t=3.99 p<.001		t=4.57 p<.001	

SOURCE: Fredric A. Rivkin and Martha Dreiman, "An Evaluation of the Phonovisual Peer Instruction Program" (River Rouge School District, Mich., October 1973): 4 Table 3.

During the final year of HumRRO's involvement with the district's compensatory education program, a special oracy instructional program was developed and implemented for students in grades one and two. To evaluate the effects of oracy instruction, a special oracy test was constructed and administered to students in October 1974 and again in May 1975. A randomly selected control group was formed in order to compare the performance of project and control group students.

An indication of the relative performance of project and control classes on the oracy test is shown in table 14. This table shows the average gain score (e.g., posttest minus pretest) for each project and control class. The number of students who participated in each class is also shown.

TABLE 14

ORACY GAIN SCORES

Groups	Schools			
	1	2	3	4
Control				
Mean	3.81	3.39	7.94	8.53
Number	19	27	28	15
Project				
Mean	18.20	16.55	11.49	10.52
Number	15	14	12	12

SOURCE: William H. Melching and Paul G. Whitmore, The Effect of Special Oracy Instruction on the Oracy Skills of Primary Level Students (Alexandria, Va.: Human Resources Research Organization, FR75-24, October 1975): 27 Table 1.

> While the average oracy pretest scores of control classes were larger than project classes, the average gain scores for project classes were larger than those of the controls. The first grade project class gained more than its control, but the difference was not statistically significant. For the second grade project and control classes, an analysis of convariance of posttest scores was performed to correct for pretest differences. This analysis showed that two of the project classes had significantly higher scores than their controls, while the third did not.
>
> The oracy instructional program was shown to be an effective means for improving the oracy skills of primary level students in at least 2 of 4 classes.[1]

In summary, there was a marked improvement in student academic performance in reading and mathematics as a result of HumRRO's work in the district's compensatory education program. While some academic achievement data are missing between the 1965-66 and 1969-70 school years, enough Title I data were available to establish a gain score baseline from which comparisons were made. A substantial improvement in student performance occurred in the 1971-72 school year and each succeeding year produced an increase in improvement, except for a slight decline by Title I students in 1974-75. Furthermore, when the performance of students of HumRRO trained teachers was compared with students of untrained teachers, the students of trained teachers generally achieved significantly higher.

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[1] Melching and Whitmore, Special Oracy Instruction, pp. 1-2.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

Introduction

The main purpose of this study was to test the research hypothesis: The application of the interorganizational model has produced significant improvement in the River Rouge School District's compensatory education program.

There were several operational hypotheses set forth in the study. In order to maintain continuity and relate the conclusions to the hypotheses, they are reviewed once more. They were:

1. Application of the interorganizational model has resulted in increased usage of individualized instructional programs in reading and mathematics
2. Application of the interorganizational model has resulted in significant improvement in teacher classroom instructional behavior
3. Application of the interorganizational model has resulted in improved inservice teacher training activities
4. Application of the interorganizational model has resulted in significant improvement in student academic achievement in reading and mathematics

Conclusions

Conclusions were derived from the findings reported in Chapter Four. Summaries of these findings are presented in tables 15, 16, 17, and 18.

TABLE 15

SUMMARY OF ANALYSIS OF THE IMPACT OF THE INTERORGANIZATIONAL MODEL ON INDIVIDUALIZED INSTRUCTION

Period	Individualized Instruction
1965-1970 Before the Model	1. Most instruction occurred in group settings with all students working on the same content at a given pace 2. Focus of programs on teachers rather than on students 3. Diagnostic and remedial services provided to students outside their regular classrooms 4. Remedial and supplementary teaching materials were acquired 5. Three judges selected 1965-66 to 1969-70 as premodel years
1971-1975 After the Model	1. Instructional objectives used to guide individual student progress more than class progress 2. Specific programs established to train teachers to individualize instruction 3. Large number of individualized materials ordered and used by classroom teachers 4. An individualized peer instruction program was developed and used by teachers 5. Three judges chose 1970-71 to 1974-75 as postmodel years 6. Board of Education adopted individualized reading program for school system

TABLE 16

SUMMARY OF ANALYSIS OF THE IMPACT OF THE INTERORGANIZATIONAL MODEL ON TEACHER BEHAVIOR

Period	Teacher Behavior
1965-1970 Before the Model	1. Precise teacher behavior not specified in advance of programs 2. Knowledge gained in workshops presumed to make for effective teaching
1971-1975 After the Model	1. Precise teacher behaviors specified in advance of programs 2. Project teachers significantly increased their response opportunities and approving behaviors, while decreasing their disapproving behaviors 3. Teachers participated in pilot program to improve oracy skills of language-limited students, 1974-75

TABLE 17

SUMMARY OF ANALYSIS OF THE IMPACT OF THE INTERORGANIZATIONAL MODEL ON INSERVICE TRAINING ACTIVITIES

Period	Inservice Training Activities
1965-1970 Before the Model	1. Programs largely content oriented and usually of one day's duration 2. Nationally recognized experts and university professors conducted lecture-discussion sessions 3. No follow-on activities scheduled to examine impact of training 4. Two judges chose 1965-66 to 1969-70 as less effective training years 5. One judge selected 1965-66 to 1968-69 as less effective training years
1971-1975 After the Model	1. Precise training goals decided upon and stated in advance of training 2. Having precise goals enabled a comparison of expected results with actual results 3. Follow-on programs were scheduled to maximize effect of training 4. Teachers were reinforced periodically for instituting practices learned in training sessions 5. Teachers practiced desired procedures and received immediate feedback about their performance 6. Large blocks of time devoted to training sessions 7. Two judges selected 1970-71 to 1974-75 as more effective training years 8. One judge chose 1969-70 to 1974-75 as more effective training years

TABLE 18

SUMMARY OF ANALYSIS OF THE IMPACT OF THE INTERORGANIZATIONAL MODEL ON STUDENT PERFORMANCE

Period	Student Performance
1965-1970 Before the Model	1. Average gain in reading = .8 grade equivalent units
1971-75 After the Model	1. Average gain in reading = 1.4 grade equivalent units 2. Percent of students reaching the Michigan 75 percent accomplishment increased steadily, 1971-1975 3. Students of project teachers achieved more than control students in reading and math, 1971-72 4. Students in PPIP achieved more in reading and spelling than the control students, 1972-73 5. Students getting oracy instruction achieved higher oracy scores than controls, 1974-75

Analysis of the results indicates the following conclusions:

1. Application of the interorganizational model resulted in increased usage of individualized instructional materials for both reading and mathematics. In fact, a substantial increase in acquisition of materials and usage occurred one year after the interorganizational model had been introduced to the compensatory education program.
2. The findings of the study support the conclusion that usage of the interorganizational model resulted in teachers

acquiring significantly better classroom teaching practices. Furthermore, the improved teaching was sustained over time.

3. The use of the interorganizational model resulted in more efficient and more effective inservice training activities. The important aspects of the improved inservice training program were explicit directions to workshop participants, guided practice, and follow-up. The greatest benefit derived was the development of in-house inservice training capability.
4. Without a doubt, the findings support a significant improvement in student academic achievement resulting from employment of the interorganizational model.

Recommendations

Recommendations for further study are suggested by the present investigation and were not investigated in this dissertation. They are:

1. Apply the interorganizational model in another school district to determine empirically the impact each step of the model has on the change process. In other words, which steps contribute most of change.
2. Determine the effects of the accountability trend of the early 1970's on compensatory education programs in other Michigan school districts.
3. Some teachers never participated in the innovative training programs offered. A study should be undertaken to identify the factors that inhibited teachers from participating in innovative programs.

4. Implement the interorganizational model in an administrative environment to determine if improvements occur in administrative procedures and practices.

APPENDIX A

WORKSHOP ON INSTRUCTIONAL OBJECTIVES

WORKSHOP ON INSTRUCTIONAL OBJECTIVES

Date	Topic or Activity
June 22	Overview of the several workshops Review of concept of behavioral objective PE #1—Behavioral vs. non-behavioral Review and discussion PE #2—Characteristics of behavioral objectives Discussion
June 23	Objectives in context: Systems approach to instruction Terminal and enabling objectives Precision of structural components PE #3—Precision of components Discussion PE #4—Appropriateness of standards Discussion
June 24	Concept of dominant domain PE #5—Domains of objectives Discussion Preparation of objectives in cognitive domain PE #6—Write objectives on selected topic Discussion
June 25	Review and discussion of work in PE #6 Preparation of objectives in affective and psychomotor domains PE #7—Write objectives in affective and psychomotor domains Discussion Criterion test construction PE #8—Write test items for objectives prepared in PE's #6 and #7
June 26	Review and discussion of PE #8 Comparison of exit behaviors of a lower level class with required entry behaviors of next higher class PE #9—Preparing exit and entry statements Review and discussion
June 29, 30	Continue any exercise above not yet completed. Continue PE #6, using material customarily taught.

APPENDIX B

WORKSHOP ON LEARNING MODULES AND MASTERY TESTS

WORKSHOP ON LEARNING MODULES AND MASTERY TESTS

Date	Topic or Activity
July 1	Overview of workshop
	Definition, rationale, merit of approach
	PE #1—Rationale for modules
	Approach for constructing modules
	Procedures for dividing material
	PE #2—Divide material into modules
	Review and discussion
July 2	Preparing objectives for learning modules
	PE #3—Convert content into objectives
	Review and discussion
	Evaluation of modules in light of objectives
	Review and discussion
	Mastery test construction
	PE #4—Construction of test items
	Review and discussion
July 6	Continuation of previous exercise
	Review and discussion
	Plan of instruction for class
	PE #5—Preparation of lesson plan
	Review and discussion
July 7-17	Application of approach to course material taught in regular school year

APPENDIX C

WORKSHOP ON CONTINGENCY MANAGEMENT

WORKSHOP ON CONTINGENCY MANAGEMENT

Date **Topic or Activity**

June 22 Conference: Rationales and Procedures for Contingency Management
- Causes of behavior
- Contingencies and their management
- Positive reinforcers and aversive stimuli
- Schedules of reinforcement
- Identifying and isolating specific behaviors
- General procedures:
  - Positive reinforcement of appropriate behaviors and extinction of inappropriate behaviors
  - Selecting initial reinforcers, shifting control to secondary reinforcers, and fading of reinforcement
  - Positive reinforcement of appropriate behaviors and punishment of inappropriate behaviors
- Specific techniques:
  - Techniques for controlling the teachers's behavior
    - Self-cueing
    - Cueing from an assistant
    - Mechanical cueing
  - Techniques for evaluating effects
    - Data analysis—graphing
  - Providing individualized reinforcers
    - Developing a reinforcer menu
    - Establishing a token economy
    - Individual performance contracting
  - Group contingencies
    - Group contracting
    - Games
  - Providing response to opportunities
    - Successive approximations
    - Chaining
  - Time out (from positive reinforcement)

June 23 Conference: Baseline techniques
- Procedures for describing teacher behavior in the classroom
  - Contingencies established
    - Positive reinforcements
    - Negative reinforcements
    - Punishments
  - Application of established contingencies
  - Application of non-established contingencies
  - Application of inappropriate contingencies
  - Provision for response opportunities

Date	Topic or Activity
	Procedures for describing student behavior in the classroom Non-attending behaviors Disruptive behaviors Mechanics for recording and analyzing data
	Practicum: Application of baseline techniques
June 24	Conference: Baseline techniques (continued) Presentation of previous day's practicum results Reliability of observations Review of behavioral definitions
	Practicum: Application of baseline techniques (continued)
June 25	Conference: Baseline techniques (continued) Presentation of previous day's practicum results Tentative identification of behavior problems in each class
	Practicum: Application of baseline techniques (continued)
June 26	Conference: Formulation of a contingency management prescription for each class Identification of behavior problems in each class (continued) Conduct of functional analyses Formulation of general procedures Selection of specific techniques
	Practicum: Application of baseline techniques (continued)
June 29	Conference: Formulation of a contingency management prescription for each class (continued) Preparation of materials required for application of selected techniques
	Practicum: Application of baseline techniques
June 30 - July 17	Conference: Review of contingency management procedures being applied in each class
	Practicum: Application of contingency management procedures prescribed for each class

APPENDIX D

WORKSHOP FOR ADMINISTRATIVE PERSONNEL

WORKSHOP FOR ADMINISTRATIVE PERSONNEL

Date	Topic or Activity
June 17	Purpose of workshop
	Background and discussion of teacher workshops
	Review of concept of behavioral objective
	Rationale for objectives
	PE #1 from Objectives Workshop
	Discussion
	Structural components of objectives
	PE #2 from Objectives Workshop
	Discussion
	Types of objectives
	Evaluation of precision of components
	PE #3 from Objectives Workshop
June 18	Concept of domains in objectives
	Administrator's role in use of objectives
	Discussion
	Learning modules and mastery tests
	Approach to construction of modules
	Construction of mastery tests
	Discussion
	Contingency management techniques
	Sample procedures for deviant behaviors
	Procedures for motivating academic performance
	Role of administrator in contingency management
	Discussion
	Administration of special PE's
	Discussion

APPENDIX E

TEACHER PERFORMANCE OBJECTIVES

TEACHER PERFORMANCE OBJECTIVES

The following teacher performance objectives were prepared to assist teachers and the program coordinator of the River Rouge School District in the implementation of the "HumRRO Project." The objectives were prepared to provide a comprehensive description of desired teacher performance. The prime purpose of the objectives is to furnish guidance to teachers with respect to the accomplishment of their jobs. The second purpose is to aid the program coordinator in his efforts to monitor and give assistance to teachers.

The objectives should be viewed as tentative. As teachers attempt to follow them and the program coordinator attempts to use them in his monitoring efforts, certain omissions or other inadequcies may be revealed. Thus, the objectives given here should be viewed as subject to change. In fact, users of the objectives are encouraged to submit their comments and evaluations.

The objectives depict four main types of teacher functions. These functions are:

I. Develop and implement training practices which maximize student acquisition of knowledge for which the teacher is responsible.

II. Design and implement practices that strengthen those student behaviors that facilitate learning and weaken those student behaviors that interfere with learning.

III. Plan for and implement a program of professional growth for self and other teachers.

IV. Examine and plan for a test of innovative practices in the classroom.

I. Develop and implement training practices which maximize student acquisition of performance capabilities for which the teacher is responsible.

- A. Identify terminal instructional objectives in behavioral terms. It is certainly possible and perhaps desirable that not all teachers do all the things necessary to identify the terminal instructional objectives, but rather that the teachers who teach a given subject matter at a given grade level divide the work among themselves. When this occurs, the program coordinator should insure that the group operates effectively and that assignments are accepted and understood.
  - 1. The teachers should prepare a list of tentative terminal objectives from each of the following requirements:
    - a. The educational performances that will be required of the students in the next grade of school as determined from the following sources:
      - (1) The textbooks and classroom tests for the next grade.
      - (2) Discussions with teachers of the next grade.
      - (3) Standardized achievement tests administered to students during the next year, if any.
    - b. The capabilities expected of students during the present grade of school as determined for the following sources:
      - (1) The textbooks for this subject matter and grade.
      - (2) Discussions with other teachers of the same subject matter and grade.
      - (3) Expectations of the school administration and community as indicated by school policies.
  - 2. The teachers should prepare a list of final terminal objectives that are coordinated with the terminal objectives for the appropriate subject matters in both the preceding and subsequent grades. Particular emphasis should be placed upon attaining resolution of differences among the teachers at the three grade levels.
- B. Identify enabling objectives for each terminal objective to the level of the minimally prepared student. The first step in the identification of enabling objectives is the preparation of a set of directions that are effective in eliciting performance of a behavioral act from minimally prepared students.
  - 1. The teachers should prepare a draft set of directions for performing the behavioral acts specified by each objective at a level of detail and language believed to be appropriate for minimally prepared students. Initial effort should be placed on those objectives whose attainment has generally been most difficult.
  - 2. The teachers should test the accuracy of the draft sets of directions by submitting them to each other for a performance review.
  - 3. The teachers should test each set of directions with one minimally prepared student at a time and revise the directions on the basis of the outcome of the test until the directions are effective in eliciting proper performance from such students.

4. Formulate significant directions in each set as enabling objectives, paying particular attention to organized information to be stored in memory and perceptual-motor skills not possessed by minimally prepared students.

C. Arrange both terminal and enabling instructional objectives into appropriate groups and orders.

1. Arrange the terminal objectives into primary groups in terms of common enabling objectives; i.e., in terms of common information pools, common perceptual-motor skills, and similar sets of directions. This may be done most readily by arranging terminal objectives along one edge of a matrix, enabling objectives along the other edge, and placing "X"s in the appropriate squares. Primary groups of terminal objectives are those which share few, if any, enabling objectives with other groups. Further analysis of primary groups can be performed by different teachers so as to reduce the amount of work required from any one teacher.

2. Arrange the terminal objectives in each preliminary group in order of learning difficulty.

a. Make estimates about the learning difficulty of each enabling objective in the primary group: Easy, moderate, and difficult should be sufficient.

b. Select as the first terminal objective to be attained that one which subsumes the fewest, easiest, and most common enabling objectives and proceed in this manner until all enabling objectives have been placed in an order. It is not necessary to place each terminal objective into a precise point in the order, but only into order categories.

D. Implement effective learning activities for each objective in each primary group.

1. Identify each objective as being principally concerned with one of the following learning functions.

a. Information retrieval.

b. Perceptual-motor skill.

c. Complex performance.

2. Develop an instructional strategy for each objective. The overall goal is to maximize the number of effective learning responses emitted by each student during each class period. General requirements for strategies for each kind of learning function are as follows:

a. Strategies for information retrieval objectives should allow the student to practice in randomly presented information retrieval events with immediate feedback. Flashcards are an example. The student may also be provided with memory aids to prompt retrieval in some or all events. Preferably, memory aids should be on a demand schedule such that they are presented only at the student's request. This may require that students work in coach-pupil pairs in lieu of using special machines or devices.

b. Strategies for perceptual-motor skill objectives will vary depending upon the particular kind of skill involved. Regardless of the details of any particular strategy, all of them should provide each student with many opportunities in which to practice the skill under conditions of prompting on demand and immediate feedback. Again, it may be most economical and effective to arrange students in coach-pupil pairs working with specially designed materials.

c. Strategies for complex performance objectives should provide the student with prompting on demand for each step or group of steps in the procedure. Directions for all except very short procedures should include a multi-level outline as a memory aid. In many instances, early learning can be concerned solely with acquisition of the verbal directions without actual practice of the performance. In this manner, the student can provide his own directions during later learning.

E. Implement appropriate learning management procedures. The overall goal is to maximize the number of effective learning responses emitted by each student during each class period. The amount of time students spend attending to presentations of information or recitations by other students, or doing things which they already do adequately well, or doing things which are well beyond their immediate capability should be reduced to a minimum. Again, different parts of the developmental work can be performed by different teachers so as to reduce the amount of work required from any one teacher.

1. The teachers should develop an evaluation system which assesses each student's entering capabilities and governs his progress through the instructional program.
    a. Prepare a number of test items for each objective, as appropriate.
    b. Assemble the items into at least two alternate test forms for each objective or group of objectives to be used for both placement and mastery progression evaluation.
    c. Assemble the remaining items into self-administered tests to be used by students in the instructional program to determine their own readiness for the next progression test.
2. The teachers should develop a record-keeping system which displays the following information about each student.
    a. His point of entry into each continuum of objectives as determined by placement tests.
    b. His attainment of objectives as determined by mastery progression tests.
    c. His present placement on each continuum of objectives.
    d. The objectives which he has not yet attained.
3. The teachers should develop or select instructional materials which, in so far as possible, are capable of being:
    a. Machine-administered,
    b. Peer-administered, or
    c. Self-administered.
4. Each teacher should detect and correct progression difficulties in instructional materials.

a. Progression difficulties are indicated when:

(1) A large number of students fail a progression mastery test on the first time through the instructional materials for that test.

(2) Some students, who fail on the first try, recycle again and again without significant improvement.

b. Diagnosis of the difficulty should be based on observation and on tutorial trials by the teacher with students who failed to learn.

c. Draft revisions should also be tested by means of tutorial trials with students who failed to learn with the original materials. Revisions should continue until satisfactory test results are obtained.

II. Design and implement practices which strengthen those student behaviors that facilitate learning and weaken those students behaviors that interfere with learning.

A. Implement a classroom environment that minimizes the occurrence of aversive stimulation.

1. Given a classroom situation typical of the teacher's experience, the teacher should list the possible aversive conditions that could exist in the classroom. Aversive conditions may result from teacher behavior, student behavior, or from some situation within the school system. The teacher may ask the students in her class to prepare a list of conditions that they think are aversive.

2. Given a list of aversive conditions that may exist in a classroom, the teacher should identify those that actually exist in her classroom. The teacher may seek the assistance of the program coordinator, the students, other teachers, etc. in identifying the conditions.

3. Given a list of aversive conditions that actually exist in her classroom, the teacher should, with the aid of students, prepare a set of classroom rules that will aid in minimizing aversive conditions. The teacher may also seek the assistance of the program coordinator in preparing classroom rules. The teacher should plan her instruction around aversive conditions that cannot be eliminated. In effect, the teacher would be minimizing the influence of such aversive conditions.

B. Implement a reinforcing environment in the classroom that will strengthen (or elicit) appropriate student learning behaviors.

1. Given the schedule of the academic program for the school year, the teacher will prepare a list of student activities, defined in behavioral terms, in each category of behavior that facilitates learning. Suggested general categories of behavior that facilitate learning are:

a. Orientation, which involves getting students in contact with instructional materials and keeping them in contact for sufficient periods of time. The term instructional materials includes verbal as well as printed materials;

b. Attending, which refers to students' presence in the classroom or attendance at special school activities;

c. Lesson completion, which refers to the completion of assigned school work, either in the classroom or away from the classroom;

   d. Non-interference behavior, which includes behavior that does not interfere with another student's learning activities. This may include the absence of certain behaviors such as fighting or other aggressive behaviors.

2. Given the list of student behaviors that facilitate learning, the teacher will implement the general contingency management procedures to elicit and maintain such behaviors. In using the general CM procedures, the teacher will use social reinforcement (approval, praise, success in learning) and will ignore inappropriate behaviors that are not harmful to the student exhibiting the behavior or to others. When reinforcing students, the teacher should minimize inadvertent reinforcement of inappropriate behavior.

C. Design and implement a monitoring system to be used in identifying students that do not respond to the general CM procedures with appropriate learning behaviors.

1. Given a classroom environment that reinforces appropriate learning behaviors, the teacher should maintain a general observation of student behavior for the purpose of identifying inappropriate individual or group behaviors that persist.

2. Given an indication of the need of a formal CM program, the teacher will develop techniques for formal observation of individual or group behaviors. A behavioral statement of the inappropriate behavior should be prepared by the teacher. An observation schedule should be prepared providing for specific periods of observing and recording the occurrence of the inappropriate behaviors. Record forms must be modified or developed for data recording during the observation periods.

3. Given the schedule for observing a specific inappropriate behavior and a set of record forms, the teacher (or teacher aide) will observe and record the occurrence of the inappropriate behavior for five to ten days. At the end of the observation schedule, the teacher will summarize the recorded data and determine if the inappropriate behavior occurs often enough to present a real problem (interferes with the learning process).

4. Given data to indicate that a specific inappropriate behavior presents a problem, the teacher will conduct a behavior analysis to identify the aspect of the environment that is maintaining the inappropriate behavior. This task will result in the decision that there is or is not a need for a formal CM program for changing the behavior.

D. Develop and implement a formal CM program for strengthening appropriate learning behaviors and extinguishing inappropriate learning behaviors.

1. Given a behavioral statement of an inappropriate behavior to be eliminated, an appropriate behavior to be elicited and strengthened, and the environmental element that is maintaining the inappropriate behavior, the teacher will prepare a statement of a strategy to be used for modifying the behavior. The complete statement of the strategy will include:

   a. A list of reinforcers developed in consultation with the student(s), principal, project coordinator, and parents, if necessary.

   b. A set of instructions to be given to the student(s) and class as an explanation of the CM program.

   c. Examples of the forms to be used in recording the observation data, along with graphs to be used in analyzing the progress of the program.

   d. A schedule for observation of behavior and administration of reinforcers.

2. Given the complete statement of a CM program for modifying a specific classroom behavior, the teacher will implement the program in the classroom. Implementation of the program requires the following steps to be accomplished by the teacher:

   a. All of the materials specified in the program statement will be assembled prior to beginning the program.

   b. If baseline data has not been obtained, the teacher (or teacher aide) will observe and record the specific inappropriate behavior for five to ten days.

   c. The programs should be started on a Monday by reading the set of instructions to the student(s) and class.

   d. Following the schedule for observing behavior and administering reinforcement for the appropriate behavior, the teacher should record and graph the behavioral data daily. At the end of a two-week period, the teacher should analyze the charted data and determine whether the program should be continued as is, modified, or ended.

   e. When the program is concluded, a brief report should be prepared according to the following format:

      (1) Description of inappropriate and desired behaviors, and what was maintaining the inappropriate behaviors.

      (2) A brief statement of the strategy used.

      (3) A list of reinforcers and description of how they were administered.

      (4) A graph of the behavioral data recorded.

      (5) Any comments you feel like making.

   f. Following the completion of the formal CM program, general CM procedures should be used periodically to maintain the appropriate behavior.

In the final two functions, the meaning of certain action verbs or other concepts may not be completely explicit. Therefore, the following definitions or alternate terms are provided.

Concept	Alternate Term
professional growth	development, advancement, improvement, betterment; an increase in capability as a teacher
innovative educational practice	novel, new, promising educational practice

Primary Action Verb	Alternate Verb or Phrase
facilitate	assist, aid, help, promote
review	examine, study, comment upon
determine	judge, decide
read	study, review

Primary Action Verb	Alternate Verb or Phrase
attend	be present at
select	choose, pick out
seek	solicit, request, ask for
try out	test, make a trial use of
reinforce	strengthen, "reward," acknowledge the worth of

III. Plan for and implement a program of professional growth for self and other teachers.

A. Identify areas for personal improvement

1. At staff meetings, informal staff gatherings, and on other occasions when teachers might congregate, the teacher should facilitate discussions related to professional growth. As an example, the teacher should be prepared to recommend possible activities that might lead to professional growth, as well as to react constructively to ideas about growth as proposed by other teachers. The teacher should not make unfair or unwarranted criticisms of the suggestions of other teachers, but should seek to provide positive, solution-oriented comments. Also, the teacher should encourage and reinforce attempts by other teachers to provide comments.

2. From discussions with the program coordinator and with his assistance, the teacher should determine areas where his teaching performance is weak and where personal improvement might be desirable. Considering the fact that few people are perfect, the teacher should be able to list two or three areas at any time.

B. Determine possible courses of action to bring about improvement in professional capabilities.

1. Given access to selected journals and/or magazines whose intended audience is the professional teacher, the teacher should routinely read (or scan) such publications for the purpose of acquiring information and suggested actions one might take with respect to improving his professional capabilities. The teacher should be prepared to report to fellow teachers some of the actions described or recommended in the publications.

2. When feasible in terms of teaching load, location, and cost, the teacher should attend conferences, symposia, and workshops that are focused on professional problems of interest to the teacher. The teacher should be prepared to report to fellow teachers any problems and recommendations that might emanate from such conferences.

C. Encourage personal improvement efforts by other teachers.

1. In all types of situations where teachers may engage in discussions focused on professional growth, the teacher should consistently reinforce the efforts of other teachers to suggest positive ways to improve their teaching. As convenient and appropriate, the teacher should publicly acknowledge the merit of suggestions of other teachers or otherwise make known his support of the suggestion.

2. When invited by a fellow teacher (or program coordinator) to review the products (lesson plans, objectives, test items, etc.) and classroom activities (teaching practices, learning activities, etc.) of a fellow teacher, the teacher should reinforce the efforts of the fellow teacher to produce quality instructional materials and to employ effective practices in teaching. As convenient and appropriate, the teacher should publicly acknowledge the merit of the other teacher's products and practices. This may be done in the presence of the fellow teacher, other teachers, principals, program coordinator, etc.

IV. Examine and plan for a test of innovative practices in the classroom.

A. Identify and select feasible innovative training practices.

1. When feasible in terms of teaching load, location, and cost, the teacher should attend conferences, symposia, and workshops that are devoted to discussion and/or evaluation of innovative training practices. The teacher should be prepared to report to fellow teachers regarding the status of such practices and should be able to defend any recommendation he might make that such practices should be instituted in his school district.

2. The teacher should routinely read (or scan) reports, articles, and books that describe and tout innovative training practices. The teacher should be prepared to report to fellow teachers regarding his understanding of the status of such practices and should be able to defend any recommendation he might make that such practices should be instituted in his school district.

B. Arrange for test and evaluation of selected innovative practices.

1. After attending conferences or after reading literature touting given innovative practices, the teacher should be able to select a new educational practice for trial implementation in his classroom. The teacher should be prepared to defend his selection of an innovative practice to implement.

2. After having selected a given innovative practice to implement in his classroom, the teacher should seek support and approval of his principal and other administrative officials for trial use of the educational practice. To improve his chances of obtaining approval, the teacher should carefully document the evidence in favor of the new educational practice and be prepared to defend his selection of it.

3. After receiving approval and support from his principal and other administrative officials, the teacher should be able to try out a new educational practice. The teacher should use controls as appropriate and provide for a valid evaluation of the effects of the practice.

APPENDIX F

PROGRAM COORDINATOR PERFORMANCE OBJECTIVES

PROGRAM COORDINATOR PERFORMANCE OBJECTIVES

I. Facilitate improvements in the learning environment in each teacher's classroom.

A. Diagnose the learning environment in each classroom with regard to:

1. Aversive stimuli. Monitor for aversive practices by the teacher and aide, aversive social behaviors among students, and aversive physical conditions.
2. Specified achievement. Monitor for the existence and use of both terminal and enabling instructional objectives with mastery learning requirements.
3. Response-rich learning activities with contingent positive reinforcement.
4. Learning facilitation behaviors.
5. Disruptive behaviors.

B. List all possible courses of action for correcting each deficiency and negotiate an appropriate change program for each diagnosed deficiency. Such programs may call for:

1. Behavior changes in teacher and aide behavior, in student social behaviors, and in student learning facilitation behaviors.
2. Development or acquisition of instructional objectives or instructional materials. These programs may call either for selecting and buying commercial materials or developing teacher-made materials. Cooperative activity may be required among teachers either in selecting commercial objectives and materials or in dividing the work required to develop teacher-made objectives or materials.

C. Follow-up each change program.

1. Insure that appropriate support is coordinator for each program. Such support may include released time for group meetings, secretarial support, books, journals, tangible reinforcers, changes in policies, etc.
2. Monitor the implementation of each program.
    a. Behavior change programs. Periodically visit each classroom and observe behavior and learning environment. In addition, periodically meet with each teacher to discuss progress of each program.
    b. Cooperative programs among teachers. Insures that each teacher understands his part of the effort. Periodically meet with teachers to review progress.
    c. Acquisition of commercial materials. Insure that orders are placed and insure that materials are speedily distributed when they arrive. Visit classrooms to insure that materials are properly used.
3. Negotiate modifications in change programs, if necessary.

4. Solicit a formal report at the completion of each behavior change program from each teacher.

II. Facilitate professional growth in each teacher and innovative practices in each classroom.

A. Arrange for and encourage teachers to meet together to discuss the development of programs for their own professional development and innovative classroom practices. Reinforce teachers for change activities and refrain from non-constructive criticism.

B. Arrange to provide teachers with access to books, journals, and magazines whose intended audience is the professional teacher and encourage them to attend conferences, symposia, and workshops that are focused on professional problems of interest to the teacher and on classroom innovations.

C. Coordinate support requirements for each teacher's professional growth and classroom innovation activity.

D. Reinforce professional development activities and classroom innovations undertaken by each teacher. At the very least, visit the classroom to observe the innovation as soon as the teacher indicates that he is ready for such a visit. Also, provide social reinforcement.

E. Encourage and arrange for teachers to report on their innovative activities to other teachers in the district.

APPENDIX G

CONTINGENCY MANAGEMENT CERTIFICATE

SCHOOL DISTRICT OF THE CITY OF RIVER ROUGE

and

HUMAN RESOURCES RESEARCH ORGANIZATION
(HumRRO)

educatio technologia

Be it known that____

Having demonstrated competence in the use of contingency management techniques in the classroom, is hereby certified as qualified in

Contingency Management

In Witness Whereof, We have here unto set our hands this______ day of________________, 19__.

____
President, Board of Education

Paul G Whitmore
HumRRO

____
Superintendent

Edward W Fredericksen
HumRRO

____
Program Coordinator

William H. Melching
HumRRO

Certificate No.____________

APPENDIX H

PLATO TOPIC

PLATO TOPIC' - A WORD ON WORDS

We recently received a tape recording of one of your meetings with Mr. Rivkin concerning Project PLATO. Overall, we were very pleased with your comments and your interest in the program. You brought up some very good points which do indeed help us out at this end of the project, and, I'm sure, will aid in your own understanding.

While listening to the tape, however, we noticed that some of you are concerned with our use of certain words, or rather, the necessity of using them. The words you seemed most concerned about were "oracy", "literacy", "auding", "listening", "receptive", "expressive", and "functional". A few of your comments were as follows:

"Why make up new words for things we already know?"

"It seems to me that we are talking about the same thing"

"If we use it, it must be functional"

We are certain that after a little more exposure to these various "problem" words and more experience in using them, they will no longer be a problem.

Actually, it's probably a good idea that a few of you are having this problem because it will give you a good idea of what your students will go through when faced with a similar situation. And, in Project PLATO, they will be faced with this situation over and over again. Your job is to present the challenge of new words to the students, to show them that words are used for much more than just "more vocabulary words" and to get them to realize that good auding and speaking skills are important in their lives.

When we use a new word to label or describe something we are doing more than just learning a new name. Labels help us to remember things better. We can then use these labels to categorize and classify information so that we can store more of it in our memory. Consider just a few of the many labels you use and how they help you everyday in communication with others: "compact car", "vegetables", "silverware", "dishes", "modern art", "dental care", and "garden tools". All of these are labels for large groups of individual items. They allow you to store in your memory a single "idea" of something, rather than all the individual items. Labels help us out in other ways besides helping to remember more things, they also help us to "think" about things. They give us better ways of thinking about various procedures or for changing our ideas. In short, labels or words help us to be able to talk about and comprehend more things in a better way and thus increase our ability to communicate ideas to more people across the entire society.

OK, now give yourself a little test to demonstrate the way in which labels help us to remember and classify information and thus be better able to explain it to others...

Without looking back to the TOPIC on ORACY-LITERACY, fill in the four blank spaces in this table --

	ORACY SKILLS	LITERACY SKILLS
RECEPTIVE	__________	__________
EXPRESSIVE	__________	__________

After you have filled in the blanks get together with a friend and try to explain the entire table. You should find that the labels help out a great deal in your description and also to help you process the idea in your mind in a more effective manner.

APPENDIX I

ORAL LANGUAGE TRAINING PROGRAM

GENERAL APPROACH

To increase the number of teachers in the District who can more likely improve oracy skills in students, it is proposed to design and conduct two special inservice workshops. The first workshop will be devoted to training one teacher in each of the four elementary schools of the District. This training will seek to make the teacher a "model" teacher of oracy skills. These four teachers will be given special guidance and assistance in the workshop, and in the following academic year, their classrooms will be designated "experimental," meaning that they will devote particular attention to increasing the oracy skills of their students during a one-year implementation period.

Procedures for assessing oracy skills of experimental students at the beginning and end of the year will be developed and employed. Also, to provide a better measure of the effects of the training, control groups of students will be formed from other classrooms, and they will experience the same assessment procedures.

Specific follow-up activities will be scheduled during the one-year trial implementation period. This will include assistance in administering and scoring the assessment devices, development of procedures and forms to be used by a local Program Coordinator, and assistance to teachers in their daily efforts to improve oracy skills.

The second workshop will occur after the trial period of implementation. Teachers from the first workshop will serve as the nucleus of an in-house staff for teaching other teachers in the District. All teachers of grades preschool through 2 will be encouraged to attend.

A follow-up and assessment of effects of the second workshop are not a part of this proposal. Plans for undertaking this work will be developed at a later time.

FIRST WORKSHOP

The purpose of this workshop is to provide intensive instruction in oracy teaching techniques to one teacher from each of the four elementary schools in the District. The Program Coordinator (PC) will also be encouraged to attend each session of this workshop.

To provide needed instruction, the existing oracy materials will first be reviewed and then expanded. In addition, supplementary guidance materials will be developed if judged necessary. The goal will be to give greater structure to the materials and to ease the planning burden of the teacher.

To minimize the time between learning by teachers and opportunity for them to practice, the workshop will be scheduled to occur one or two weeks prior to the beginning of the 1974 fall term. The workshop will last five days; all materials necessary to conduct the workshop will be prepared by the research staff. This will include the expanded and new oracy guidance materials, student record keeping procedures, assessment devices and instructions for administering and scoring them, and guidance documents to aid the PC monitor the effort in the absence of the research staff.

Selection of teachers to attend the workshop will be made by personnel of the District. Ideally, the teachers selected should have previously worked with or expressed interest in the oracy program. Prior to their selection, teachers will be informed of the general plans of the research effort by the PC, and he will place particular emphasis on their eventual role as "model" teachers and as potential teachers of other teachers. Because the assessment device may require students to read, only teachers of grades 1 and 2 will be chosen for this workshop.

At the workshop, teachers will systematically examine the revised guidance materials, judging each segment in terms of its feasibility and applicability in the classroom. Since each teacher will be working independently when the program is actually under way, no attempt will be made to achieve concensus about the acceptability and usefulness of the materials. However, teachers will be encouraged to share their opinions about the materials and to discuss openly their plans for using them. Hopefully, the format and content of the materials will be sufficiently flexible so that modifications can easily be made by teachers during the workshop should they feel such are warranted.

IMPLEMENTATION AND FOLLOW-UP

This part of the project will occur during academic year 1974-75. Its main purpose is to give the four teachers from the first workshop extended practice in instructing students in oracy skills. Prior to starting the program, each project teacher will administer and score an oracy test.[1] The same test will again be administered near the end of the school year.

Soon after the school year starts, a HumRRO researcher will visit the District and assist each project teacher in the administration of the assessment device. At this time he will also participate in the selection of "control" classes or students. In each school it is planned to obtain control students from classes of the same education level as that taught by the project teacher. Thus, if the project teacher in School A teaches grade 1, then all other grade 1 classes in School A are potential sources of control students. It is not planned, however, to use all of these students as controls; this might create a problem because of the need to assess the oracy skill of these students both at the start and end of the school year.

Using the special guidance materials, the teacher will seek to increase the oracy skills of each student in the class. Early in the academic year, a second HumRRO researcher will visit the District and observe each project teacher as he or she instructs students. Immediate feedback and help will be given with respect to use of oracy techniques. A second visit for this same purpose will be made about mid year. Records of oracy training and performance of students that are to be maintained by teachers will be examined at this time, and recommendations for changes will be made as appropriate.

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[1] While it is not yet decided what behavior (or behaviors) will be assessed by the test, particular attention to this matter will be devoted early in the effort by the research staff and program consultants.

During the year the PC will visit the classroom of each project teacher on a frequent and regular basis. He will provide timely feedback and correction and will note special problems as they may arise. During the time of visits by HumRRO researchers, these problems will be discussed and resolutions sought.

Some time early in May 1975, project and control teachers will administer the oracy assessment posttest to all experimental and control students. After the records have been scored by District personnel, the results will be sent to the HumRRO research staff. An interim report will then be prepared by HumRRO. This report will briefly describe the first workshop and the implementation effort; its focus will be primarily on the results of the oracy assessment test.

During a week in June 1975, the four project teachers will travel to HumRRO Western Division where they will participate with the HumRRO research staff in the development of a manual on implementing the oracy program. This manual will be used in conducting the second workshop.

SOURCES CONSULTED

Books

Bloom, Benjamin; Davis, Allison; and Hess, Robert. Compensatory Education for Cultural Deprivation. New York: Holt, Rinehart and Winston, Inc., 1965.

Brickell, Henry M. "The Role of Local School Systems in Change." In Perspectives on Educational Change, pp. 76-100. Edited by Richard I. Miller. New York: Appleton-Century-Crofts, 1967.

Burns, Terrence, and Stalker, G. M. The Management of Innovation. London: Tawistock Publications, 1966.

Carlson, Richard O. Adoption of Educational Innovation. Eugene, Oreg.: The Center for Advanced Study of Educational Administration, University of Oregon, 1965.

1971 Catalogue. Chicago: Science Research Associates, Inc., [1971].

Chin, Robert. "Some Ideas on Changing." In Perspectives on Educational Change, pp. 325-340. Edited by Richard I. Miller. New York: Appleton-Century-Crofts, 1967.

Engelmann, Siegfried, and Bruner, Elaine C. Distar Reading, Teacher's Guide. Chicago: Science Research Associates, Inc., [1971].

Good, Carter V., and Scates, Douglas E. Methods of Research. New York: Appleton-Century-Crofts, Inc., 1954.

Gordon, Edmund W., and Wilkerson, Doxey A. Compensatory Education for the Disadvantaged. New York: College Entrance Examination Board, 1966.

Green, Leroy A. Educational Technology Dissemination Project: A Project in Selected Methods of Disseminating Information Regarding Educational Media by State Department of Eduction. Denver: Colorado State Department of Education, 1966.

Gross, Neal C.; Giacquinta, Joseph B.; and Bernstein, Marilyn. Implementing Organizational Innovations: A Sociological Analysis of Planned Educational Change. New York: Basic Books, Inc., 1971.

Guba, Egon G. "The Process of Educational Improvement." In Educational Change: The Reality and the Promise, pp. 136-153. Edited by Richard R. Goulet. New York: Citation Press, 1968.

Havelock, Ronald G. Planning for Innovation Through Dissemination and Utilization of Knowledge. Ann Arbor, Mich., Center for Research on Utilization of Scientific Knowledge, Institute for Social Research, University of Michigan, 1971.

Havelock, Ronald G. The Change Agent's Guide to Innovation in Education. Englewood Cliffs, N. J.: Educational Technology Publications, Inc., 1973.

Hill, Joseph E., and Kerber, August. Models, Methods, and Analytical Procedures in Educational Research. Detroit: Wayne State University Press, 1967.

Hoffman Reading Systems: Teachers Manual. El Monte, Calif.: Hoffman Electronics Corp., [1971].

Jung, Charles C.; Fox, Robert; and Lippitt, Ronald O. "An Orientation and Strategy for Working on Problems of Change in School Systems." In Change in School Systems, pp. 68-88. Edited by Goodwin Watson. Washington, D.C.: National Training Laboratories, National Education Association, 1967.

Lewin, Kurt. "Group Decisions and Social Change." In Readings in Social Psychology, pp. 313-347. Edited by G. E. Swanson. New York: Henry Holt and Co., 1952.

Lippitt, Ronald; Watson, Jeanne; and Westley, Bruce. The Dynamics of Planned Change. New York: Harcourt, Brace and Co., Inc., 1958.

Lippitt, Ronald. "Role and Processes in Curriculum Development and Change." In Strategy for Curriculum Change, pp. 11-28. Edited by Robert R. Leeper. Washington: Association for Supervision and Curriculum Development, 1965.

McDill, Edward L.; McDill, Mary S.; and Sprehe, J. Timothy. Strategies for Success in Compensatory Education: An Appraisal of Evaluation Research. Baltimore: The Johns Hopkins Press, 1969.

Martin, Bill, Jr., and Brogan, Peggy. Instant Readers: Teacher's Guide. New York: Holt, Rinehart and Winston, Inc., 1971.

Martin, Bill, Jr., and Brogan, Peggy. Sounds of Language Readers. New York: Holt, Rinehart and Winston, Inc., 1971.

Math Modules, Teacher's Guide. New York: Meredith Corporation, [1971].

Miles, Matthew B. "Innovation in Education: Some Generalizations." In Innovation in Education, pp. 57-65. Edited by Matthew B. Miles. New York: Bureau of Publications, Teachers College, Columbia University, 1964.

Morison, Elting E. "A Case Study of Innovation." In The Planning of Change, pp. 592-605. Edited by Warren G. Bennis, Kenneth D. Benne, and Robert Chin. New York: Holt, Rinehart and Winston, 1962.

Mort, Paul R., and Cornell, Frances G. American Schools in Transition. New York: Bureau of Publications, Teachers College, Columbia University, 1941.

[Nachtigal, Paul A.], A Foundation Goes to School. New York: The Ford Foundation, 1972.

O'Connell, John J. Managing Organizational Innovation. Homewood, Ill.: Richard D. Irwin, Inc., 1968.

Otto, Wayne, and Askov, Eunice. The Wisconsin Design for Reading Skill Development: Rationale and Guidelines. Minneapolis: National Computer Systems, 1974.

Rogers, Everett M. Diffusion of Innovations. New York: Free Press of Glencoe, 1962.

Sox, Gilbert. Empirical Foundations of Educational Research. Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1968.

Travers, Robert M. W. "A Study of the Relationship of Psychological Research to Educational Practice." In Training Research and Education, pp. 525-558. Edited by Robert Glaser. Pittsburgh: University of Pittsburgh Press, 1962.

Turabian, Kate L. A Manual for Writers of Term Papers, Theses, and Dissertations. 4th ed. Chicago: The University of Chicago Press, 1973.

Vallance, Theodore R., and Crawford, Meredith P. "Identifying Training Needs and Translating Them into Research Requirements." In Training Research and Education, pp. 497-523. Edited by Robert Glaser. Pittsburgh: University of Pittsburgh Press, 1962.

Van Dalen, Debold B. Understanding Educational Research: An Introduction. 3rd ed. New York: McGraw Hill Book Co., 1973.

Watson, Goodwin, ed. Concepts for Social Change. Washington, D.C.: National Training Laboratories, National Education Association, 1967.

Wise, John E.; Norberg, Robert B.; and Reitz, Donald J. Methods of Research in Education. Boston: D. C. Heath & Co., 1967.

Periodicals

Becker, James W. "Incorporating the Products of Educational Development into Practice." Journal of Research and Development in Education 3 (Winter 1970): 93-98.

Corwin, Ronald G. "Strategies for Organizational Innovation: An Empirical Comparison." American Sociological Review XXXVII (August 1972): 450-461.

Katz, Elihu. "The Social Itinerary of Technical Change: Two Studies of the Diffusion of an Innovation." Human Organization 20 (Summer 1962): 70-78.

Sherwin, Chalmers W., and Isenson, Raymond S. "Project HINDSIGHT." Science 156 (23 June 1967): 1571-1577.

Walton, Richard E. "Advantages and Attributes of the Case Study." The Journal of Applied Behavioral Science 8 (January/February 1972): 73-78.

Reports

Ammerman, Harry L., and Melching, William H. The Derivation, Analysis, and Classification of Instructional Objectives. Alexandria, Va.: Human Resources Research Office, The George Washington University, Technical Report 66-4, [1966].

1971 Annual Report. Alexandria, Va." Human Resources Research Organization, [1971].

Badel, Alden W. ESEA Program of Compensatory Education. Arlington, Va.: ERIC Document Reproduction Service, ED 023 531, 1968.

Carpenter, Polly, and Hall, George R. Case Studies in Educational Performance Contracting. Vol. 1: Conclusions and Implications. Santa Monica, Calif.: The Rand Corporation, [1971].

Caylor, John S.; Sticht, Thomas G.; Fox, Lynn C.; and Ford, J. Patrick. Methodologies for Determining Reading Requirements of Military Occupational Specialties. Alexandria, Va.: Human Resources Research Organization, Technical Report 73-5, [1973].

Chapline, Elaine B. Title I, ESEA Programs, School Year 1973-74. Evaluation--Final Reports July, 1974. Arlington, Va.: ERIC Document Reproduction Service, ED 095 230, 1974.

Cogan, Eugene A., and Lyons, J. Daniel. Frameworks for Measurement and Quality Control. Alexandria, Va.: Human Resources Research Organization, Professional Paper 16-72, [1972].

Douglas, Paul A. The Diffusion of an Innovation Through Interorganizational Linkages: A Cooperative Case Study. Arlington, Va.: ERIC Document Reproduction Service, ED 098 236, 1974.

Felix, Joseph L., and Jacobs, James N. Evaluation of the Impact of the Elementary and Secondary Education Act, Title I in the Cincinnati Public Schools After One Year and a Half. Arlington, Va.: ERIC Document Reproduction Service, ED 018 527, 1967.

Frederickson, Edward W.; Whitmore, Paul G.; and Melching, William H. Innovation in Classroom Management: An Evaluation. Alexandria, Va.: Human Resources Research Organization, Consulting Report, [September 1973].

Fox, David J. More Effective Schools Program: Evaluation of ESEA Title I Projects in New York City 1967-68. Arlington, Va.: ERIC Document Reproduction Service, ED 030 202, 1969.

Fry, John P., and Cliborn, Robert E. Development, Implementation, and Evaluation of Leadership/Management Training Within Army Battalions. Alexandria, Va.: Human Resources Research Organization, Final Report FR-WD(TX)-75-11, [1975].

Havelock, Ronald G., in collaboration with Guskin, Alan. Planning for Innovation: A Comparative Study of the Literature on the Dissemination and Utilization of Scientific Knowledge. Bethesda, Md.: ERIC Document Reproduction Service, ED 029 071, 1969.

Hood, Paul D. Implementation and Utilization of the Leader Preparation Program. Alexandria, Va.: Human Resources Research Office, The George Washington University, Technical Report 67-2, [1967].

Human Resources Research Organization. "What is HumRRO?" Alexandria, Va.: Human Resources Research Organization, (March 1971).

McClelland, William A. The Process of Effecting Change. Alexandria, Va.: Human Resources Research Office, The George Washington University, [1968].

McClelland, William A., and Lyons, J. Daniel. Guidelines for Manpower Training as Developed by the Human Resources Research Office. Alexandria, Va.: Human Resources Research Office, The George Washington University, Professional Paper 43-68, [1968].

Melching, William H.; Frederickson, Edward W.; and Whitmore, Paul G. Introducing Innovation in Instruction: In-Service Teacher Workshops in Classroom Management. Alexandria, Va.: Human Resources Research Organization, Technical Report 70-104, [1970].

Melching, William H., and Whitmore, Paul G. The Effect of Special Oracy Instruction on the Oracy Skills of Primary Level Students. Alexandria, Va.: Human Resources Research Organization, FR-WD(CA)-75-24, [1975].

Mosbaek, E. J. Analysis of Compensatory Education in Five School Districts, Volume II: Case Studies. Arlington, Va.: ERIC Document Reproduction Service, ED 023 531, 1968.

Niehoff, Arthur H. Planned Change in Agrarian Countries. Alexandria, Va.: Human Resources Research Organization, Technical Report 69-21, [1969].

Olmstead, Joseph A.; Christensen, Harold E.; and Lackey, L. L. Components of Organizational Competence: Test of a Conceptual Framework. Alexandria, Va.: Human Resources Research Organization, Technical Report 73-19, [1973].

Osborne, William C. Developing Performance Tests for Training Evaluation. Alexandria, Va.: Human Resources Research Organization, Professional Paper 3-73, [1973].

Richland, Martin. Traveling Seminar and Conference for the Implementation of Educational Innovations. Santa Monica, Calif.: System Development Corp., Technical Memorandum 2691, [October 1965].

Rivkin, Fredric A., and Dreiman, Martha. A Phonovisual Peer Instruction Program. Arlington, Va.,: ERIC Document Reproduction Service, CS 001 852, 1974.

Showel, Morris. An Evaluation of Alternative Programs for Training Beginning Typists in the Army. Alexandria, Va.: Human Resources Research Organization, Technical Report 72-33, [1972].

Suchman, J. Richard; Kubala, Albert L.; and Taylor, John. The Development of an Open-Access, Performance Oriented Curriculum for Training the Military Policeman (MOS 95B20). Alexandria, Va.: Human Resources Research Organization, Final Report FR-WD(CA)-75-9, [1975].

Taylor, John E.; Michaels, Eugene R.; and Brennan, Mark F. The Concepts of Performance-Oriented Instruction Used in Developing the Experimental Volunteer Army Training Program. Alexandria, Va.: Human Resources Research Organization, Technical Report 72-7, [1972].

Weingarten, Kenneth; Hungerland, Jacklyn; Brennan, Mark; and Allred, Brent. The APSTRAT Instructional Model. Alexandria, Va.: Human Resources Research Organization, Professional Paper 6-71, [1971].

Weingarten, Kenneth; Hungerland, Jacklyn E.; and Brennan, Mark F. Development and Implementation of a Quality-Assured, Peer Instructional Model. Alexandria, Va.: Human Resources Research Organization, Technical Report 72-35, [1972].

Whitmore, Paul G.; Melching, William H.; and Frederickson, Edward W. Gain in Student Achievement as a Function of Inservice Teacher Training in Classroom Management Techniques. Alexandria, Va.: Human Resources Research Organization, Technical Report 72-26, [1972].

Whitmore, Paul G. Use of the Job Model Concept to Guide Job Description Procedures for Army Officers. Alexandria, Va.: Human Resources Research Organization, Technical Report 73-26, [1973].

Government Documents

Michigan. Act No. 312 of the Public Acts of 1957, as amended by Act No. 134 of the Public Acts of 1968 (1968).

Michigan. Section 3 of Act No. 312 of the Public Acts of 1957 as amended. 75th Legislature, reg. sess., 1969.

Michigan. Act No. 312 of the Public Acts of 1957, as amended by Act No. 134 of the Public Acts of 1971 (1971).

Michigan. The State School Aid Act (1971).

U. S. Congress. House. The Elementary and Secondary Education Act of 1965. Pub. L. 89-10, 89th Cong., 1st sess., 1965, H. R. 2362.

Unpublished Works

Byron, Rev. Joseph P. "An Analysis of Some Consequences of an Effort to Spread a Curriculum Innovation." Ed.D. dissertation, Columbia University, 1969.

Grodon, Aaron Z., Sr. "A Comparison of Three Programs for Compensatory Elementary Education in the Detroit Public Schools." Ph.D. dissertation, University of Michigan, 1974.

Human Resources Research Organization, Western Division. "PLATO: Phunctional Language Training in Oracy Skills." Presidio of Monterey, California. n.d.

Human Resources Research Organization, California Division. "Project Interlink." Carmel, Calif., 1975. (Typewritten.)

LaMar, Ronald V. "In-Service Education Needs Related to the Diffusion of an Innovation." Ed.D. dissertation, University of California, Berkley, 1966.

Maguire, Louis M. "A Comparison of a Planned Change Effort of a Regional Educational Laboratory to the Lippitt-Watson-Westley Model." Ed.D. dissertation, Temple University, 1970.

O'Connell, Richard H. "A Diffusion Model for the COLAMDA Project in Colorado." Ed.D. dissertation, University of Denver, 1971.

Pohland, Paul A. "An Interorganizational Analysis of an Innovative Educational Program." Ph.D. dissertation, University of Washington, 1970.

River Rouge School District. "ORTRAIN GUIDEBOOK." River Rouge, Mich., June 1975. (Typewritten.)

Rivkin, Fredric A., and Dreiman, Martha. "An Evaluation of the Phonovisual Peer Instruction Program." River Rouge, Mich., October 1973. (Mimeographed.)

School District of the City of River Rouge, Michigan. Minutes of the Board of Education meeting of 9 December 1971. (Typewritten.)

Smith, Mary A. "A Comparison of Two Elementary Schools Involved in a Major Organizational Change: Or You Win a Few, You Lose a Few." Ph.D. dissertation, University of Oregon, 1972.

Whitmore, Paul G. Report to the River Rouge (Michigan) Board of Education, 27 January 1971. (Typewritten.)

Other Sources

Federal Projects Office, River Rouge School District, River Rouge, Michigan. Title I and Chapter 3 application forms, evaluation forms, and correspondence; memoranda; school district purchase order; and the director's logs were reviewed in that office for the years of 1965-66 through 1974-75.

Human Resources Research Organization, Fort Bliss Division. "A Proposal to Provide In-Service Teacher Training to Instructor Personnel of the River Rouge (Michigan) School District." Fort Bliss, Tx., 1970. (Typewritten.)

Human Resources Research Organization. "Comments to Workshop Instructors," Fort Bliss, Tx., [June 1972]. (Typewritten.)

Human Resources Research Organization, Fort Bliss Division. "Organization and Conduct of a Workshop in Individualized Instruction for Personnel of the River Rouge (Michigan) School District." Fort Bliss, Tx., 1972. (Typewritten.)

Human Resources Research Organization, "Organization and Conduct of a Workshop in Individualized Instruction for Personnel of the River Rouge School District." Alexandria, Va., Research Proposal P72-101, 1972. (Typewritten.)

________. "An In-Service Program to Train Teachers to Facilitate the Development of Functional Oracy and Literacy Skills in Pre-School, Kindergarten, 1st and 2nd Grades." Alexandria, Va., Research Proposal P74-11, 1973. (Typewritten.)

Human Resources Research Organization, Western Division. "Project ORTRAIN." Carmel, Calif., 1974. (Typewritten.)

Human Resources Research Organization, Alexandria, Va., "Research Proposal: Oral Language Training Program." Alexandria, Va., 1974. (Typewritten.)

Melching, William H. Personal letter, 7 May 1970.

Michigan Department of Education, Bureau of Compensatory Education Services, Lansing, Michigan. Title I and Chapter 3 (formerly Section 4 and Section 3) application forms and evaluation reports were reviewed in that office for the years of 1965-66 through 1974-75.

Ravitz, Mel. "Societal Trends and the State of Education." Speech given to River Rouge teachers at Greenfield Village, Dearborn, Mich., 14 March 1969. (Typewritten.)

Whitmore, Paul G. Personal letter, 3 March 1972.

________. Personal letter, 27 May 1975.